IT MENTOR
In IT investments, as in winemaking, timing is everything, says Frank Modruson. **PAGE 28**

DATA OVERLOAD
Storage capacity shortfalls are hampering the performance of many Oracle databases. **PAGE 6**

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JANUARY 15, 2007 ▪ VOL. 41 ▪ NO. 3 ▪ $5/COPY

Philly Flushes Oracle Out of Water Bill Project

City switches vendors to revive Project Ocean; Oracle will cover $6.9M in costs

BY MATT HAMBLEN

The city of Philadelphia has restarted a water billing system project after a 14-month shutdown, although it is replacing most of the Oracle applications it planned to use with new software.

Citing figures released by the city solicitor, Philadelphia CIO Terry Phillis said last week that the city has also signed an amended contract with Oracle Corp. in which the company agreed to pay or forgive costs totaling $6.9 million.

In addition, Phillis said a team of managers from three city agencies has been created to oversee the revived initiative, which is code-named Project Ocean. And the CIO will directly oversee the integration of the new billing software himself in an effort to better manage the costs. "My head is going to be on the block anyway, so I'd rather have control of my own destiny than have it in the hands of a third party," he said.

> **"My head is going to be on the block anyway, so I'd rather have control of my own destiny."**
>
> TERRY PHILLIS, PHILADELPHIA CIO, WHO WILL OVERSEE THE CITY'S BASIS2 DEPLOYMENT

Work on Project Ocean was suspended in October 2005 after the city had spent $18 million — twice what it initially expected to spend — without getting a working system. Last September, officials said they had reached an agreement in principle with Oracle that would let the city install third-party utility billing software, then unidentified, at no extra cost.

Phillis said last week that the city plans to use Basis2, an off-the-shelf billing and revenue management package developed by Prophecy International.

Oracle Project, page 15

SWIMMING IN THE GLOBAL TALENT POOL

To stay afloat in today's worldwide IT labor market, you need more than top tech skills. You need to promote yourself creatively and to exude what recruiters call 'relevance.' **PAGE 25**

Farmers Fear Livestock ID Mandate

Tracking animals with RFID could prove pricey, they say

BY MARC L. SONGINI

Independent livestock ranchers last week were quick to criticize signals that the new Congress may soon mandate implementation of the RFID-based National Animal Identification System.

Signing on to the NAIS program has been voluntary since it was first proposed in 2003, but Rep. Collin Peterson (D-Minn.), the new chairman of the House Agriculture Committee, said last week that he may soon push for the program to become mandatory.

"The voluntary approach is a good steppingstone in the process of achieving a functioning animal ID system," Peterson said. "But full participation may ultimately be necessary in order to ensure that we have a system that meets the needs of livestock producers

ID Mandate, page 36

NEWSPAPER

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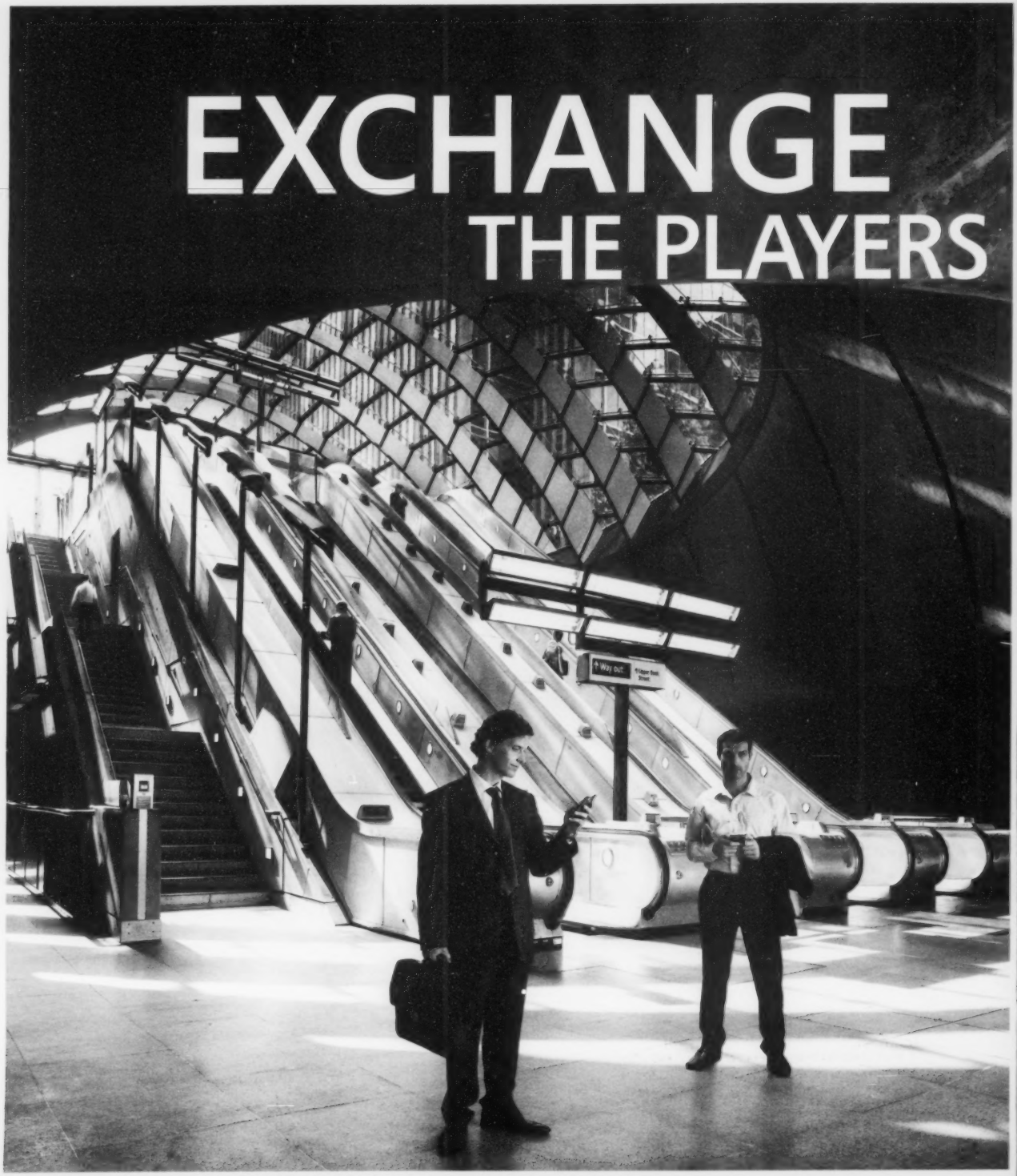
EXCHANGE
THE PLAYERS



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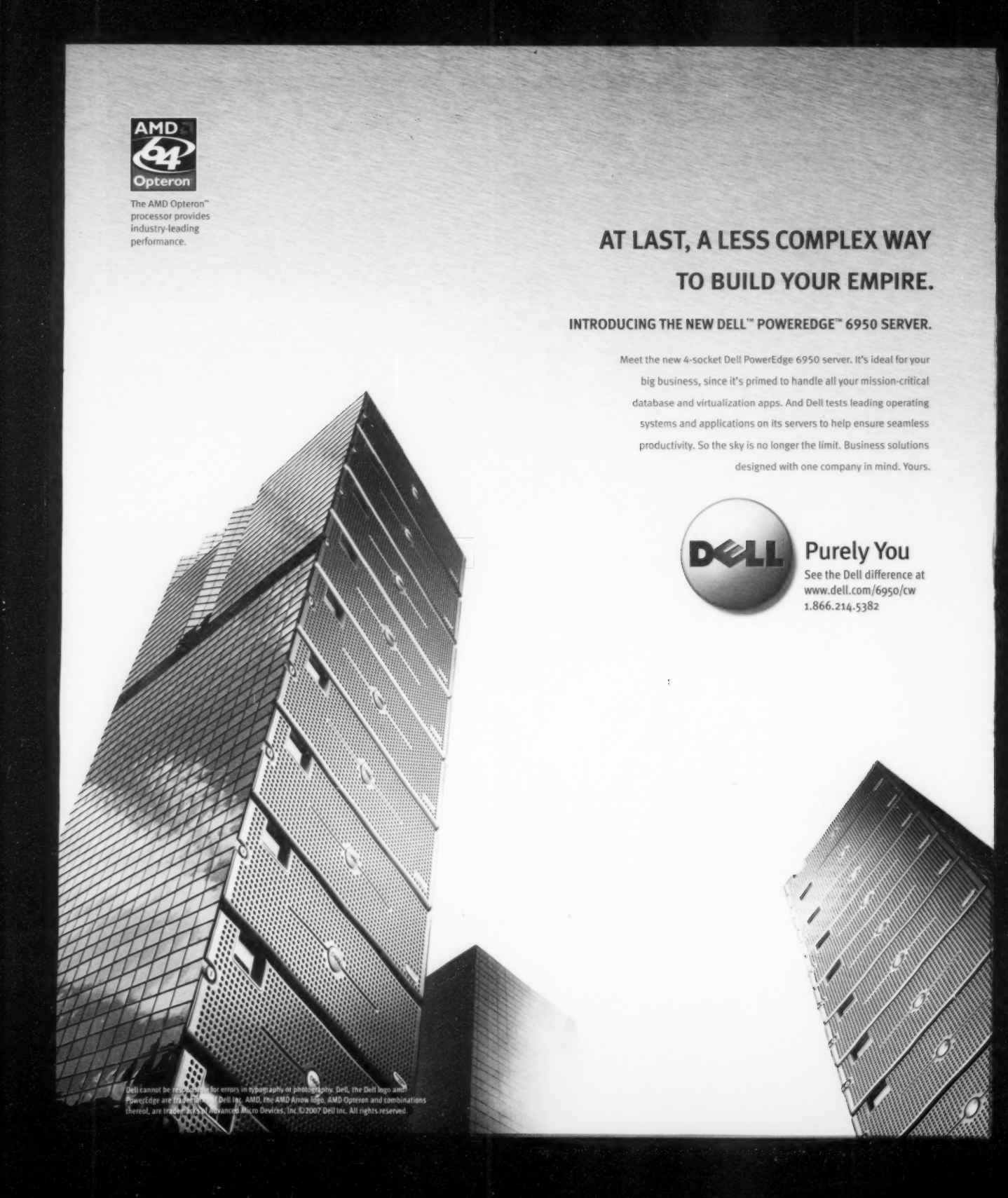
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CONTENTS

Smart Printers, Scary Printers

In the Technology section: Today's high-tech, networked printers — yes, printers — can open your corporate network to viruses or other malicious attacks unless they're patched and hardened. We identify the risks. **Page 18**

NEWS

6 A majority of Oracle users say a lack of storage capacity has affected their database performance, according to a user group survey.

6 The NSA confirms that it helped Microsoft configure Windows Vista to meet Pentagon security requirements.

7 Aetna is set to launch an application that will allow its 15 million clients to access their health records online by the end of June.

7 California is offering tax rebates to encourage wider use of solar energy by companies.

10 Q&A: Teradata's Bob Fair says a planned spin-off of the NCR data warehousing unit will let the two companies "compete 100%" in their separate markets.

12 Global Dispatches: A U.S.-based security vendor and a group of U.S. and German investors have both said they plan to submit buyout bids for insolvent mobile phone maker BenQ Mobile.

14 SIAC and Reader's Digest are both migrating mainframe applications to Unix systems. But the two companies are taking very different approaches.

14 The TSA plans to start issuing new smart-card credentials to more than 750,000 port workers in March, despite concerns that more testing is needed.

15 The city of Atlanta is rolling out business intelligence software to all city departments in an effort to keep their records visible to all residents and officials.

TECHNOLOGY

22 QuickStudy: Graphic File Formats. Ever wonder what the file extensions .bmp, .gif, .jpg and .tif really mean? This tutorial on graphic file formats explains the pros and cons of each.

23 Security Manager's Journal: Laying a New Year's Course for Security. The new year is a time for a fresh start. When better to decide which projects will get attention in 2007? C.J. Kelly has already made some decisions, giving a thumbs up to encryption and a thumbs down to a Vista upgrade.

MANAGEMENT

26 Swimming in the Global Talent Pool. To keep up in the worldwide IT competition, you need talent and top-notch skills, you have to be a creative self-promoter, and you must exude what recruiters call "relevance."

28 IT Mentor: Benefits-funded IT. In IT, as in winemaking, timing is everything, says IT Mentor Frank Modruson. He explains how the right project, timed properly, can pay for itself and reap great rewards for the business.

OPINIONS

8 On the Mark: Mark Hall passes along a warning on VoIP security problems from a book written by two security vendor execs.

16 Don Tennant believes IT professionals need to recognize that they're swimming in a global talent pool and that "good enough" isn't good enough anymore.

16 John D. Halamka discusses the first law of project dynamics: Aggravation is neither created nor destroyed; it is simply converted from one project to another.

24 Mark Willoughby sees Microsoft as the rare company that can compete with four different business models.

30 Bart Perkins supports the postproject review as a way for team members to learn constructive lessons.

38 Frankly Speaking: Frank Hayes says Apple's iPhone was developed in a bubble and only now will get input from users — a model that doesn't work for IT.

DEPARTMENTS/RESOURCES

At Deadline Briefs	6
News Briefs	8, 10
Letters	17
IT Careers	33
Company Index	34
How to Contact CW	34
Shark Tank	38

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TODAY'S TOP BAITS

- Apple's mobile phone: A must-have product, or will it go the way of the Newton?
- The Four Curses of the IT Biz
- Twisted password security
- How not to sell call center software
- Small town mentality

BIG FISH (TOP USERS)

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Six Cool Gadgets You Should Give Your Users

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AT DEADLINE

SAP Expects Slowing Sales Growth in Q4

SAP AG's stock dropped more than 10% last Thursday after the business software vendor warned of lower-than-expected revenue growth in its fourth quarter, which ended Dec. 31. Fourth-quarter revenue is expected to be about $3.82 billion, up 7% from the year-earlier period. SAP said quarterly software sales slowed to 4% in the U.S. and Japan during the quarter, while sales grew by 13% in Europe, the Middle East and Africa.

Transmeta Faces Intel Countersuit

Intel Corp. has filed a countersuit against Transmeta Corp. in an ongoing patent infringement disagreement between the two companies. Transmeta sued Intel in October, charging that Intel's Pentium and Core PC processors violate 10 Transmeta patents. Intel has denied the charge and now accuses Transmeta of infringing seven Intel patents.

Oracle Previews Quarterly Patch Plan

Oracle Corp. has for the first time released details of an upcoming release of security patches. Oracle last week published its Critical Patch Update Pre-Release Announcement, which provides details about the quarterly set of patches expected to be released tomorrow. The updates will include 52 patches for Oracle's database, application server, Enterprise Manager, identity management products, E-Business Suite, Developer Suite and PeopleSoft Enterprise PeopleTools products.

Coalition to Unveil E-health Initiative

A coalition of technology firms, insurance companies and physician groups this week will unveil an initiative designed to reduce medication errors. The National E-Prescribing Patient Safety Initiative will give physicians Web-based access to free electronic prescribing software.

Oracle DB Users Wrestle With Storage Demand

Capacity shortfalls affecting database speeds and availability, survey finds

BY ERIC LAI

THE NUMBER of terabyte-class Oracle databases rose rapidly over the past year, according to newly released survey results. But many Oracle database administrators are having trouble quenching their thirst for more storage.

In the survey, which was conducted for the Independent Oracle Users Group (IOUG) in September and released this month, 60% of the 366 respondents said a lack of available storage has affected the performance of their databases. Ten percent said performance has been significantly affected. A total of 46% said that the availability of their databases has been affected by storage capacity issues. And 43% said they have delayed application rollouts because of a lack of storage resources.

At Chicago Mercantile Exchange Holdings Inc. (CME), the number of Buy and Sell contracts being processed per day has grown nearly sixfold over the past six years, from 917,000 in 2000 to nearly 5.5 million last year.

As a result, the exchange is perpetually running out of free disk space for its Oracle databases, according to Joel Kulesa, a storage technology specialist at the CME. To help free up space, the exchange uses techniques such as hierarchical storage management, data classification and archiving, Kulesa said via e-mail.

Performance Anxiety

The CME faces an even bigger problem, though: The performance of disk drives isn't increasing fast enough to meet its processing requirements, Kulesa said. "Balancing growing capacity needs with increasing performance demands has been the real challenge we're facing," he added.

The IOUG's survey, which was conducted by Chatham, N.J.-based Unisphere Research with funding from Symantec Corp., found that 31% of the respondents now manage databases larger than 1TB. That was up from 13% in a similar survey released early last year.

Respondents reported that the top contributors to their growing storage needs were increased transaction data, information generated by new devices and systems, and regulatory requirements. The growth was also fueled by increasing amounts of unstructured data, such as graphics, video and e-mail files.

"Storage is growing much faster than the revenues and profits of companies," said Ari Kaplan, the Chicago-based IOUG's president and a senior consultant at Datalink Corp., a storage architecture services firm in Chanhassen, Minn.

According to the survey, some Oracle users are seeing such rapid data growth that when budgeting for storage needs, they often make their best guesses and then tack on 10% to 25% as a safety margin.

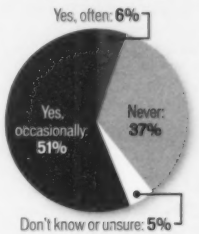
Kaplan said the situation is making some database administrators nervous enough that they're trying to become more involved in storage management decisions traditionally handled by other IT team members. That is causing conflicts, he noted.

"I've seen cases of frustration and concern and politicking over storage," Kaplan said. "The larger the company, the larger the challenge of who owns and runs what."

Kulesa, though, minimized the potential for any conflicts between the storage and database staffs at the CME. "We work very closely with our DBA team on all storage design and provisioning," he said, adding that high-performance, customer-facing databases account for a majority of the capacity on the exchange's storage-area network. ▸

Capacity Crunch

Has your database growth ever exceeded available storage resources?



BASE: 366 members of the International Oracle Users Group, surveyed last September. Total does not add up to 100 because of rounding.

SOURCE: THE IOUG AND UNISPHERE RESEARCH

NSA Helped Microsoft Set Security for Vista

Spy agency, vendor teamed to sync OS with standards

BY ROBERT McMILLAN

Microsoft Corp. and the National Security Agency confirmed last week that the intelligence agency helped the company configure Windows Vista so it meets the Pentagon's security requirements.

NSA spokesman Ken White said the agency has provided guidance on securing Windows XP and Windows 2000 in the past. But this is the first time the NSA has worked with Microsoft or any vendor prior to an operating system's release, White added.

By getting involved early in the process, the NSA ensured that there would be a version of Vista that is secure enough for the U.S. Department of Defense and compatible with federal software, he said. Now the NSA can guarantee that Vista's off-the-shelf security configuration "is at a level that meets our standards," White said.

Microsoft declined to make any executives available to comment about the NSA's help. In a statement, the company said that it had asked a number of government entities to review Vista, including the NSA, the National Institute of Standards and Technology and NATO.

Alarm Raised

Still, the NSA's involvement raised red flags for some privacy advocates. "Some bells are going to go off when the government's spy agency is working with the private sector's top developer of operating systems," said Marc Rotenberg, executive director of the Electronic Privacy Information Center in Washington.

Rotenberg and other privacy advocates said it would be tempting for the NSA to push for a way to gain access to data stored on Vista-based systems.

But White said the NSA didn't open any back doors into the new operating system. "This is not the development of code here," he said. "This is assisting in the development of a security configuration."

The work with Microsoft was done in accordance with the NSA's mandate to protect the nation's information systems, White said. "This is the other half of the NSA mission that you never hear much about," he said. "All you ever hear about is foreign signal intelligence. The other half is information assurance." ▸

McMillan writes for the IDG News Service.

Aetna Clients to Get Access to Online Health Data

Insurer will offer links to 15M users

BY HEATHER HAVENSTEIN

Aetna Inc. is weeks away from launching an application that will provide its 15 million customers with online access to their health care information. The launch will culminate a two-year internal development effort by the Hartford, Conn.-based insurer.

Access to the online Aetna CareEngine-powered Personal Health Record (PHR) software will be available to 1 million clients by the end of March and to the remaining 14 million customers during the second quarter, Aetna officials said.

The system lets Aetna clients access health data compiled from insurance claims and other external sources, and it allows the customers to update their own records with data such as blood pressure readings taken at home.

An analytic engine developed by New York-based Aetna subsidiary ActiveHealth Management Inc. will analyze the PHRs daily and notify patients if their care falls out of line with commonly accepted best practices, said Robert Heyl, architect manager of Aetna's E-Health business unit.

For example, Heyl said, the CareEngine software can determine whether a physician has prescribed medication that could have an adverse reaction with medicine prescribed by another doctor. The system can notify affected clients of such potential problems by telephone and e-mail.

Insurance providers and employers are adopting electronic health records in an effort to reduce duplicate testing, medical errors and other problems. The records allow consumers to share comprehensive data with health care providers rather than depend on fragmented data maintained by multiple physicians and hospitals.

Standards Support

Aetna was among more than 1,000 insurance companies, with a total of 200 million customers, that last month announced support for standards for creating and managing electronic health records.

The Aetna claims data will be fed to the CareEngine analytic software through Web services messages, Heyl said. The ActiveHealth engine will compare that data to a large set of rules developed by physicians for 30 different medical conditions, he added.

"[The CareEngine] will look at individual records for evidence across multiple data points to allow it to create a statistically valid conclusion," Heyl said. "Whatever conclusions are made, whatever your health status is, [it] gets summarized into a PHR."

Customers will access the online records by using an Aetna-built Microsoft .Net-based application that uses Web services to transmit information between the online interface and ActiveHealth's databases, Heyl said.

The PHR data will be stored on a Microsoft SQL Server database, and ActiveHealth is using an Oracle Corp. database to add advanced analytics capabilities, he said.

The application also includes a link to some of Aetna's internal Java applications, such as call center and disease management software, that use IBM's WebSphere middleware.

"We've placed an intermediary between the Java and .Net interactions that works on XML to make sure ... we remove any kind of .Net-skewed XML data types or Java-skewed data types," Heyl said.

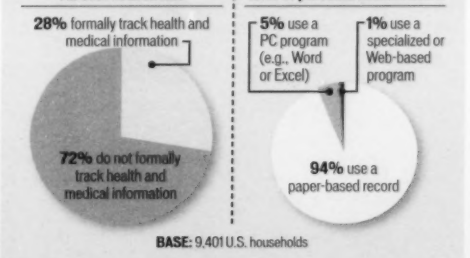
Aetna considered using an enterprise service bus to provide interoperability between the .Net and Java software but instead opted to write custom code because of concerns that an ESB might not provide the needed scalability, he said.

The biggest challenge was to find a way to manage and authenticate patient identities, Heyl said. The insurer is using the OASIS WS-Security standards that are related to federated identity management. It's also using IBM's Tivoli access management software and Microsoft Corp.'s Active Directory for identity management.

Liz Boehm, an analyst at Forrester Research Inc., said that while other insurance companies have offered PHRs regionally, Aetna may be one of the first to offer them nationally. The company, she noted, likely will have to offer incentives, such as discounts on premiums, to foster adoption of the online system to help overcome patient fears about security and privacy.

Medical Monitoring

Twenty-eight percent of U.S. households formally track health and medical information, primarily using paper-based methods.


All U.S. households
28% formally track health and medical information
72% do not formally track health and medical information
U.S. households keeping any form of personal health record
5% use a PC program (e.g., Word or Excel)
1% use a specialized or Web-based program
94% use a paper-based record
BASE: 9,401 U.S. households

SOURCE: FORRESTER RESEARCH INC., JUNE 2006

'Green' Technology Takes Root in Some Data Centers

California offers rebates on solar energy costs

BY PATRICK THIBODEAU

Phil Nail is ahead of most IT managers in adopting so-called green technologies. His company, a Web hosting firm known as AISO.Net, uses solar panels that generate 12 kilowatts of electricity to power its data center and main office.

Nail now hopes to improve the facility's energy efficiency by putting a layer of dirt on the roof and planting drought-resistant, bush-type plants. He said it will cost AISO.Net, formally named Affordable Internet Services Online Inc., about $30,000 to cover its 2,000-square-foot roof with three to four inches of dirt and the plants.

But Nail, technology manager at Romoland, Calif.-based AISO.Net, thinks the "green" roof will cut cooling needs by half in the data center, which houses about 300 servers. For those who need to be convinced of dirt's effectiveness, Nail's advice is to stick their hands in some of the stuff. "It's cool down there," he said.

AISO.Net markets itself as an environmentally friendly company. Its home page lists the current server room temperature as well as how much carbon, nitrous and sulfur dioxides are eliminated by its solar power system each year.

California's government wants to see many more companies adopt solar power. This month, the state began offering a $2.50-per-watt tax rebate for solar energy systems that can generate up to 1 megawatt of power. It has budgeted a total of $2.9 billion for incentives over 10 years.

A 'Tough Sell'

Globally, annual sales of solar equipment for both homes and businesses total about $15 billion, according to market research firm IDC. But it estimates that spending in the U.S. accounts for only about 10% of the overall market.

"For most companies, to invest in what is perceived as novel energy technologies is a tough sell," said Nicholas Lenssen, an IDC analyst. "Most companies want a two-to-three-year payback. By and large, there isn't a whole lot of interest in on-site generation."

The costs of solar equipment are often high, making government incentives critical. For instance, a 500-kilowatt system would amount to about $3.5 million, based on an estimated cost of $7 per watt to buy and install the equipment, said Rhone Resch, president of the Solar Energy Industries Association in Washington.

California's rebate could cut that cost by about $1.5 million, and federal tax credits would reduce it by another $1 million or so, according to Resch.

Any return on investment depends on how much a company is paying for electricity now. Resch said a six-to-eight-year payback wouldn't be unusual for a large user.

Last fall, Sea Gull Lighting Products LLC in Riverside, N.J., began using a 500-kilowatt solar energy system that provides 20% of the power needs for a 500,000-square-foot warehouse from Monday through Friday. On weekends, the solar panels can provide all of the power needed, said Alan Hirsch, Sea Gull's executive vice president.

The panels take up about 60,000 square feet on the warehouse's roof, he said. SunEdison LLC, a solar services company in Baltimore, installed and owns the system. But Sea Gull pays a lower rate for the power it uses than it would be charged by a local electric utility, Hirsch said.

BRIEFS

Investigator Pleads Guilty in HP Case

Private investigator Bryan Wagner pleaded guilty in federal court in San Jose late Friday to two charges in connection with work he did for Hewlett-Packard Co. to help find the source of HP board leaks in 2005 and 2006. Wagner pleaded guilty to one count of conspiracy and one count of aggravated identity theft and also agreed to cooperate with federal officials investigating the spying scandal. Sentencing was set for June 20.

Kagermann Set to Stay On as SAP CEO

Henning Kagermann is expected to renew his contract as CEO of SAP AG for a year after the current pact expires in December 2007, according to a source. "If the supervisory board asks Kagermann to continue, he will," the source said. The company has no maximum age limit for its executives, but those who are 60 and older have to negotiate one-year contracts with the company's supervisory board annually. Kagermann turns 60 in July.

Microsoft in Talks With Liberty Alliance

The Liberty Alliance and Microsoft Corp. are engaged in talks to reconcile their competing sets of protocols for secure Web transactions. The Liberty Alliance, whose members include HP, IBM and Sun Microsystems Inc., backs the ID-Web Services Framework while Microsoft supports the WS-Star protocols.

Sun Unveils Blade, Upgrade Service

Sun unveiled a new blade server, along with a subscription service for automatic hardware upgrades. The new Sun Blade X8420, priced from $13,095, is powered by dual-core 2.8-GHz AMD Opteron 8000 chips. The Sun Refresh subscription service will let customers in the U.S. update blades within two months of new servers becoming available.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY BUZZ BY MARK HALL

MATTHEW FAULKNER

VoIP Soon to Be A Target for . . .

. . . hackers, and it won't be difficult to hit. In *Hacking Exposed VoIP*, which hit bookshelves last month, authors David Endler and Mark Collier argue that voice-over-IP technology "is about to hit critical mass" and will become a favorite security hole for hackers to slip through to disrupt IT operations. Endler and Collier hope their book can show not just how to crack a VoIP network — which it will — but also how to lock one down. According to Endler, who is director of security at 3Com Corp.'s TippingPoint division in Austin, hackers have begun to use VoIP in phishing exploits that emulate the interactive voice response systems of legitimate companies. "The rate of vulnerabilities will increase," says Collier, chief technology officer at SecureLogix Corp. in San Antonio. Distributed denial-of-service attacks are likely and could be devastating to VoIP systems, Collier says, noting that even a modest DDoS attack could make it all but impossible to make VoIP calls because of quality-of-service issues. Then there's the problem of privacy. "It's extremely easy to listen in on a call," Endler says. It isn't that much harder to inject noise or even spam into VoIP communications. And speaking of unwanted messages, spam over Internet telephony, or "spit," is another looming problem. As Collier observes, "There's nothing today to prevent you from getting as much voice spam as e-mail spam." Endler says it's possible to deploy a secure VoIP system, but it's tough to do it right. So if you're engaged in a VoIP rollout or are thinking about one, read their book. If you're not, maybe you should consider yourself lucky.

2006
Year VoIP made SANS Institute's top 20 list of security problems.

Stop Web surfers from hurting . . .

. . . themselves and your company. It's wise, of course, to stop internal users from visiting recognized porn or gambling sites from your company's PCs. But what about legitimate sites that harbor hidden malware? It's a growing trend. For example, according to IDC Denmark, companies in that country were afflicted for the first time last year with more malware originating from Web sites than from e-mail. You could put a filtering appliance on your network that checks for evil exploits buried in Web pages, but you'd likely encounter end-user complaints about latency when the appliance got hammered under heavy loads, says Dan Nadir, vice president of product strategy at ScanSafe Services LLC in San Mateo, Calif. Nadir argues that only a managed service, such as the one his company offers, can handle peak-demand periods. ScanSafe has a dedicated server farm analyzing everything on Web pages before browsers hit them. Nadir says the company analyzes billions of pages every month. This year, he expects more e-mail filtering services, such as Postini Inc.'s, to offer Web filtering capabilities.

6B
Number of Web pages ScanSafe reviews for malware per month.

Don't let your database dictate . . .

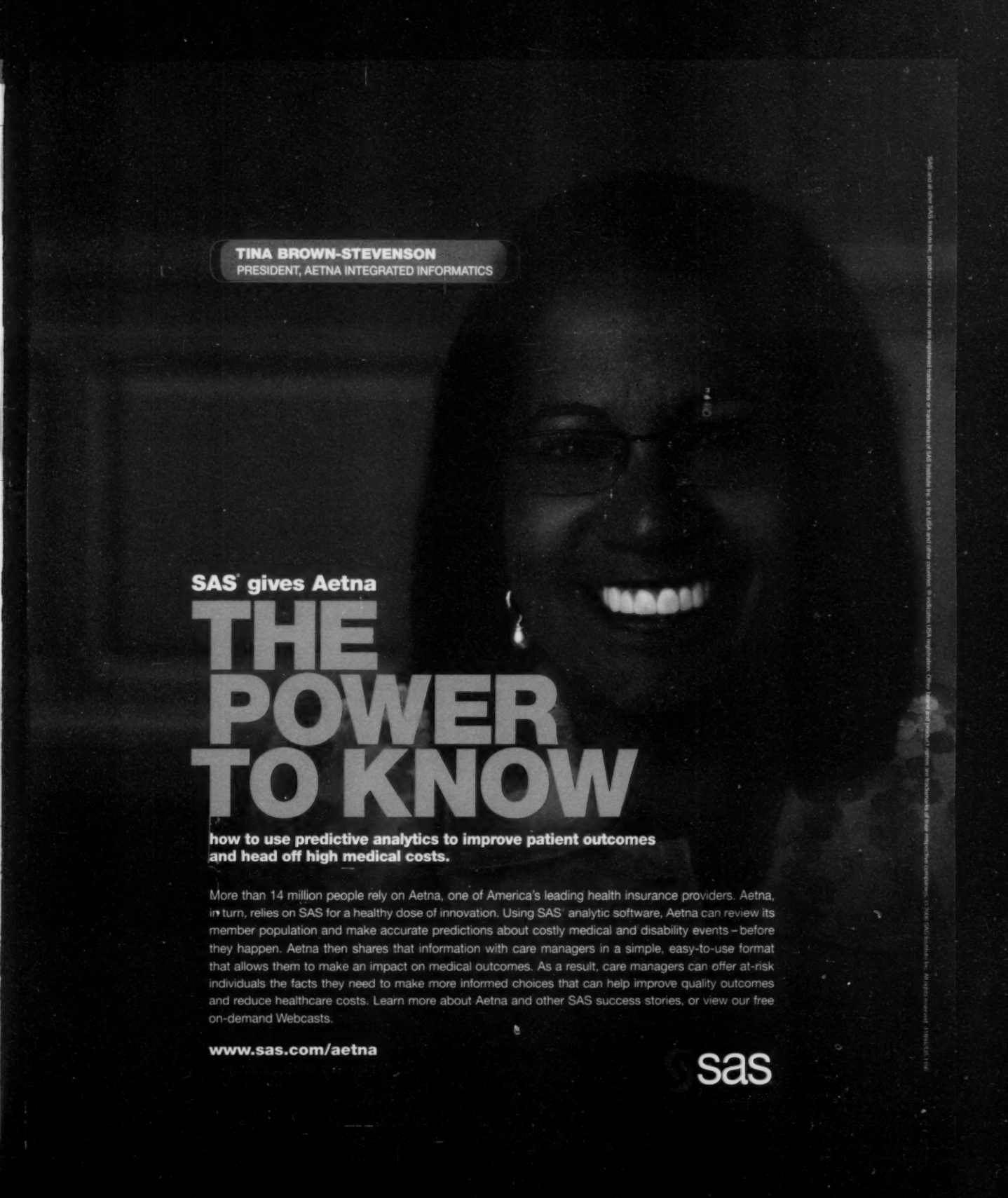
. . . the availability of your Web content management system. Cascade Server, an online content management system offered by Atlanta-based Hannon Hill Corp., has many of the same bells and whistles that other CMS tools do. Its role-based access lets end users edit only material they're authorized to. Its workflow processes can leverage e-mail, RSS and other notification methods. And it can check whether your Web pages meet the needs of handicapped users. But David Cummings, Hannon Hill's CEO, thinks Cascade Server's focus on "aggregating content in a vendor-neutral format" is what really ought to intrigue you. The software achieves vendor independence and ensures high availability by attaching database records associated with each Web page to the page itself. If your database crashes, Cascade still tracks edits, additions, deletions and other changes within the file itself and can be synchronized with your database later. Pricing starts at $40,000 per processor. On March 1, Hannon Hill plans to ship Cascade 5.0, which will include improved site analytics as well as integration with applications from vendors like Salesforce.com.

Keep your content going even when your DB is down, CUMMINGS says.

Call, don't write, when you need . . .

. . . technical support. John Ragsdale, vice president of research at the Service & Support Professionals Association, regularly polls SSPA members about IT support trends. One he recently found interesting is that many vendors say they aren't investing in e-mail response tools, despite an increased volume of e-mail to their support desks. Ragsdale thinks IT staffers are using the phone on matters of some urgency and relegating the use of e-mail to "noncritical issues." Of course, phone calls are more expensive to handle, which in turn fuels increases in service and support costs. So even if you have an 800 number to dial, it could be a toll call in the end. ▸

RAGSDALE says e-mail response tools get short shrift for tech support.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BRIEFS

Microsoft Issues 50% Of Expected Patches

Microsoft Corp. has released four sets of patches, including three for critical vulnerabilities in its Office, Outlook and Windows software. The company's monthly update for January was expected to include eight sets of patches, but four were abruptly pulled out of the pipeline. No reason was given for the decision.

Brocade Acquires Silverback Systems

Brocade Communications Systems Inc. has acquired Silverback Systems Inc., a maker of network acceleration processor technology, for an undisclosed sum. The acquisition is Brocade's third in the past 10 months. The company bought NuView Inc. for an undisclosed price and announced plans in August to buy McData Corp. for $713 million. The McData deal is still pending.

Juniper Appoints Elop to COO Post

Juniper Networks Inc. named Stephen Elop to the new post of chief operating officer. Elop reports to Chairman and CEO Scott Kriens and will oversee Juniper's enterprise and service provider businesses, as well as its corporate development, global sales and service, marketing and IT organizations. Kriens will retain responsibility for strategy, communication and talent development. Elop was previously president of worldwide field operations at Adobe Systems Inc.

Oracle Updates Free SQL Developer Tools

Oracle Corp. has released the first major upgrade to SQL Developer, its free visual database development tool. The new version can browse non-Oracle databases, including Microsoft SQL Server and Access and MySQL AB's open-source MySQL. The SQL Developer 1.1 tool simplifies the creation and debugging of code in standard SQL and in Oracle's proprietary PL/SQL programming languages.

Teradata Exec Says Timing Is Right for Split From NCR

Spin-off will let the two vendors focus on their 'distinct markets,' says VP

BY HEATHER HAVENSTEIN

NCR Corp. last week announced plans to spin off its Teradata data warehousing subsidiary as an independent company. ***Bob Fair****, vice president of business strategy and chief marketing officer at Dayton, Ohio-based Teradata, spoke with Computerworld about the factors behind the decision. Fair also discussed what the spin-off means for Teradata in a market that is becoming increasingly competitive as Hewlett-Packard Co., IBM, Microsoft Corp. and Oracle Corp. all step up their efforts to grab data warehousing users.*

What was behind the decision to separate Teradata from NCR, and what effect can Teradata users expect to see on things such as new product releases and customer support? The two companies have very different business models. The question isn't really why the split; it is really a question of timing. Teradata over the past four or five years has really established itself as a leader in the enterprise data warehousing space. The rest of the NCR organization has improved its operational performance.

You end up with two different companies competing in two different segments that are both now very strong financially. It makes sense to let us both go and compete 100% in our distinct markets.

Customers shouldn't expect to see any changes at all or any negative changes. We expect zero disruption. We'll be even stronger and more nimble when this separation is finished.

Do you need to be more nimble to fend off increasing competition in the data warehousing business from companies like Microsoft and Oracle? We're the biggest organization that focuses exclusively on enterprise data warehousing. [By spinning off from NCR] we end up with every single management cycle in the organization focused on becoming more agile and nimble. [But] this is not a situation where we are being forced into this due to competitive pressures.

Will this move better position the company to compete with HP, which under former NCR CEO Mark Hurd has been quietly ramping up its plans to enter the data warehousing market? It is no surprise at all that HP is trying to enter the market. We take every competitor very seriously. We obviously respect HP as an organization and pay a tremendous amount of attention to what we learn about what they're doing.

HP publicly endorses that enterprise data warehousing is the best way to deliver enterprise analytics. [But] it takes a tremendous amount to go deliver enterprise data warehousing. They are going to have a challenge [trying] to do that. They will probably be more of a competitor in the data mart space than they will be to us.

You've said that Teradata has seen an increased interest in enterprise data warehousing. What is driving that, and how are the drivers different than they were three to five years ago? Customers have ended up creating a lot of data, and they still can't get simple answers to questions like, "How much does Vendor A spend with me?"

When the executives ask the questions and can't get the answers, they get the explanation that the company has standard processes and data, but several instances of these things [instead of a single data warehouse].

There is a recognition that I have to have better analytics to compete, and if I don't put all my data in one place, I can't get a quick, nimble and agile [analysis] capability. ◗

NCR's Data Warehousing Spin-off a Long Time Coming

BY JEREMY KIRK

NCR and its Teradata data warehousing division will separate into two publicly traded companies in an effort to better focus their respective business strategies, NCR said last week.

Teradata, which makes high-end data warehousing software, and NCR have disparate business models and target different markets, said Bill Nuti, NCR's president and CEO, in a statement. NCR's major businesses include ATMs and retail point-of-sale technologies.

Teradata and NCR had effectively been running as two stand-alone businesses for several years, Nuti said.

NCR had deliberated for some time over whether to spin off Teradata, but "we didn't feel Teradata was sound enough, really," said NCR Chairman James Ringler. "Only a few years ago, it wasn't making money."

In 2005, Teradata had revenue of $1.5 billion and an operating income of $309 million, excluding pension expenses, NCR said.

Dan Vesset, an analyst at IDC, said that because NCR and Teradata have been operating like separate companies for several years, there should be no immediate impact on end users in terms of changes to product offerings or service levels.

"Long term, it is positive in that it frees up Teradata to be a more nimble company to react to challenges," he said. "There is an opportunity for Teradata to grow faster if they are not part of a larger, slow-moving company."

Once it officially separates from NCR, Teradata will boost its investment in consulting services and applications and work to expand its list of partners, Nuti said.

Meanwhile, NCR plans to expand the markets for its self-service devices, which Nuti said are becoming more widely adopted in the health care, public sector, travel and gaming industries.

In the future, NCR will focus on acquiring smaller companies in the self-service area, Nuti said. "We think it's important to build out from an innovation standpoint, a self-service platform," he added.

The division of the two companies is expected to be completed in six to nine months. Nuti will head NCR, while Mike Koehler, Teradata's current senior vice president, will become president and CEO of Teradata.

NCR's board of directors must still approve the move. Under the plan, holders of NCR common stock will receive Teradata stock, although the distribution ratio has not yet been determined, NCR said. The Internal Revenue Service must approve the transfer, which should be tax-free for NCR shareholders, the vendor said.

Kirk is a reporter with the IDG News Service. Heather Havenstein contributed to this story.

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GLOBAL DISPATCHES

An International IT News Digest

Two Suitors Consider Bids to Buy BenQ Mobile

MUNICH

TWO SUITORS with U.S. connections said last week they plan to submit bids for insolvent mobile phone maker BenQ Mobile GmbH.

A buyer will be chosen for the Munich-based company by Martin Prager, its insolvency administrator. BenQ Mobile filed for bankruptcy protection last September after BenQ Corp., its Taiwan-based parent company, decided to stop investing in the money-losing operation. The mobile unit failed to find a buyer on its own by a Dec. 31 deadline.

An investment group that includes IT and telecommunications executives from the U.S. and Germany discussed its buyout plan with officials from the German states of Bavaria and North Rhine-Westphalia last Monday. The group is seeking state-backed lines of credit totaling about €100 million ($129 million U.S.) and is asking that 800 BenQ Mobile employees who have been shifted to a temporary organization continue to be paid by the German government and former owner Siemens AG for six months after a sale.

The second interested buyer, Cleveland-based Sentex Sensing Technologies Inc., told the German state officials in a meeting on Tuesday that it hopes to hire up to 1,700 of BenQ Mobile's former workers and said it would pay the employees itself. But Sentex, a maker of biometric and security products, has yet to reveal its financing plans.

The government in North Rhine-Westphalia said it is seeking "a sustainable solution" for BenQ Mobile production facilities in the cities of Kamp-Lintfort and Bocholt. Likewise, the Bavarian government hopes to rescue the company's plant in Munich.

■ JOHN BLAU, IDG NEWS SERVICE

U.S. Official Chides China Over 3G Plans

LAS VEGAS

THE HEAD of the U.S. Department of Commerce last week criticized China for a lack of urgency about creating a third-generation wireless network, citing the delay as an example of how global technology innovation can be thwarted.

Speaking at the 2007 International Consumer Electronics Show, Commerce Secretary Carlos M. Gutierrez said support for common technology standards is needed to foster a worldwide environment for promoting innovation.

Gutierrez then hit China for continuing to delay the granting of licenses to build a 3G network in that country. "When a government uses its heavy hand to decide what is best for its citizens, it warps the marketplace," he said. "We look with great concern when any country obstructs or hinders competition."

Some analysts have said that the Chinese government has held off on plans to build a 3G network because it wants to promote a homegrown standard called TD-SCDMA instead of embracing a more widely used version of the CDMA technology.

■ ELIZABETH MONTALBANO, IDG NEWS SERVICE

Vendor Adds Hosted Software Unit in China

HANGZHOU, CHINA

HONG KONG-BASED Alibaba.com Corp. last week launched a new company called Alisoft, which will offer hosted business software to small and midsize companies in China.

According to Alibaba.com, the new unit will initially offer five types of software: customer relationship, inventory, sales force and marketing information management applications, as well as financial tools.

The company, which runs a business-to-business e-commerce site in China as well as an online auction site for consumers, estimated that less than 10% of the country's more than 40 million small and midsize businesses have adopted advanced software.

Alisoft's hosted services are currently available for free, but the company will start charging for the services during the first half of this year.

Alibaba.com, which has based its Chinese operations in Hangzhou, didn't disclose pricing details.

■ STEVEN SCHWANKERT, IDG NEWS SERVICE

GLOBAL FACT

$8.6B

Total revenue generated in China during the first half of 2006 by major vendors of telecommunications equipment, led by Nokia Corp., Motorola and Huawei Technologies Co. The amount was up 9% from the same period in 2005.

SOURCE: GARTNER DATAQUEST

Intel to Close Research Facility in South Korea

BUNDANG, SOUTH KOREA

INTEL CORP. this month said it plans to close a research and development office here as part of a previously announced corporate makeover that includes shedding 10% of its worldwide workforce.

"This has nothing to do with the Korean market or Korean R&D in general, and everything to do with our restructuring," an Intel spokesman said. He said the closure will affect a small, unspecified number of workers, who can relocate to other Intel offices or accept a severance package.

The planned closure is the latest in a series of layoffs, plant closings and division sales that began last April, when Intel CEO Paul Otellini projected that the company's profit would decline to $9.3 billion in 2006 from $12.1 billion the year before. Intel is scheduled to announce its fourth-quarter and year-end financial results tomorrow.

"Compared to our workforce reduction of 10,500 announced in September, this will be very, very, very small," the spokesman said.

■ BEN AMES, IDG NEWS SERVICE

Chinese Firm Updates Sogou Search Engine

BEIJING

BEIJING-BASED Sohu.com Inc. has released the first upgrade of its Sogou search engine since late 2005, saying that the updated software offers improved Web crawling and site analysis capabilities.

The Sogou technology trails far behind the search engines offered by Baidu.com Inc., Google Inc. and Yahoo Inc. in usage within China, according to the China Internet Network Information Center in Beijing, which tracks the industry.

The Sogou 3.0 release can index 500 million Web pages per day, said Sohu.com. It added that Sogou's database now includes 10 billion retrieved Chinese-language Web pages, up from 2 billion in the previous version of the software.

■ SUMNER LEMON, IDG NEWS SERVICE

Compiled by Mike Bucken.

Briefly Noted

IBM last week named Dah-Chuen Chien CEO of its Greater China Group, which oversees operations in China, Hong Kong and Taiwan. Chien replaces Henry Chow, who had led the unit for 12 years and will retain his position as its chairman. Previously, Chien was IBM's general manager for Southeast Asia and South Asia.

■ ROBERT MULLINS, IDG NEWS SERVICE

The U.K. Security Service, which oversees counterterrorism efforts there, plans to send e-mail alerts warning citizens of changes to the "national threat level," a measure of the risk of terrorist attacks. The security service, also known as MI5, said last week that details of the program will be announced soon.

■ PETER SAYER, IDG NEWS SERVICE

Motorola Inc. last week completed its $3.9 billion cash acquisition of Symbol Technologies Inc., one day after the European Commission approved the deal. The EC said it had found that in all product categories, the combined company "would continue to face several strong, effective competitors." Motorola, which agreed to buy Symbol last September, said the Holtsville, N.Y.-based maker of mobile products will become part of its enterprise networks unit.

■ PAUL MELLER, IDG NEWS SERVICE

Aéroport de Luxembourg has awarded Unisys Corp.'s Belgian unit a five-year contract to build and manage a new IT infrastructure at the airport. Brussels-based Unisys Belgium SA will install self-service kiosks and other technologies for airlines to issue tickets and boarding passes and route baggage. It will also provide technical management, support and help desk services. The contract's value wasn't disclosed.

Taiwan Semiconductor Manufacturing Co. has received approval from the Taiwanese government to transfer 0.18-micron chip production technology to its plant near Shanghai. Hsinchu, Taiwan-based TSMC had waited more than two years for the approval. Taiwan has been slow to change regulations limiting the semiconductor manufacturing technologies that can be transferred to China.

■ SUMNER LEMON, IDG NEWS SERVICE

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Mainframe Migrations Follow Different Routes

NYSE unit moves quickly toward Unix; Reader's Digest takes outsourcing path

BY PATRICK THIBODEAU

FRANCIS FELDMAN recalled last week that as he got closer to choosing a vendor to help his company with a mainframe-to-Unix migration, he was worried. But the IT manager said that after "a sleepless week, where I was trying to figure out where to turn," he came up with an idea to help him make his decision.

Feldman, vice president of the shared data center at Securities Industry Automation Corp. (SIAC) in New York, made surprise calls to the the vendors being considered for the migration project. He told the president of Clerity Solutions Inc., one of the vendors, that he was going to send the company some coding work and then fly to its Phoenix development center within 24 hours to examine the end results.

Some of the other vendors balked at such tests, Feldman said. But Clerity completed the work and was hired.

That taught Feldman a lesson about dealing with prospective migration vendors. "Don't be afraid to challenge them with a final test," he said. "And that test should [make them] stand on the merits of what they have told you so far. If they told you that they can migrate so much code or so many screens in a certain time frame, put them to the test."

Nick Sementilli, CIO at The Reader's Digest Association Inc. in Pleasantville, N.Y., is also involved in a mainframe migration process. But he has taken an entirely different approach by outsourcing his mainframe to Infocrossing Inc. under a contract that was signed in 2004 and recently extended by three years to 2012.

SIAC's migration is moving ahead on a fixed schedule and is due to be completed by the fourth quarter. For Reader's Digest, the migration could last five more years, according to Sementilli, who has stopped developing new applications for the mainframe and plans to gradually port existing applications to Unix.

SIAC, a subsidiary of NYSE Group Inc. that runs the systems for the New York Stock Exchange, is migrating to IBM servers running AIX. Feldman said the 1,650-MIPS mainframe that SIAC is moving off of processes data after trades are completed and generates reports for NYSE member companies. It also gathers data for regulatory purposes.

Feldman didn't disclose specific savings goals but said he expects the move to Unix systems to cut the costs of running the applications on the mainframe in half. He considered outsourcing the mainframe but said he also expects to gain business advantages through increased integration of the systems once the migration is completed.

Reader's Digest is mostly switching to Solaris-based systems from Sun Microsystems Inc., along with some AIX-based machines. Sementilli said he had concerns about outsourcing the mainframe, partly because that was the only system involved. As a result, he wanted to seek out a small vendor instead of going to a large IT services firm.

> "If [vendors] told you that they can migrate so much code or so many screens in a certain time frame, put them to the test."
>
> FRANCIS FELDMAN, VICE PRESIDENT, SIAC

Infocrossing bills the publishing company based on usage metrics, such as the amount of disk space consumed and tape cartridges needed.

Sementilli said Reader's Digest has cut costs by managing the data on the mainframe more efficiently. He added that the variable cost structure created an incentive "to look at our resources and see what we really needed."

"Once you're paying by the drink, every sip matters," said Peter Allen, managing director of Technology Partners International Inc., an outsourcing consultancy in The Woodlands, Texas. Allen said some CIOs are using variable cost models to control internal expenses through chargebacks.

TSA Ready to Issue Smart Cards to Port Workers

Rejects GAO call for more testing before rollout

BY JAIKUMAR VIJAYAN

The U.S. Transportation Security Administration is moving ahead with plans to start issuing new smart card identity credentials to more than 750,000 port workers starting in March, despite some concerns about its readiness to do so.

The U.S. Department of Homeland Security, which oversees the TSA, earlier this month published the final rules for the Transportation Worker Identification Credential (TWIC) program, which was put in place after the terrorist attacks of Sept. 11, 2001. The program aims to boost security at about 4,000 transportation facilities in the country.

The federal government plans to issue smart cards to 750,000 port employees.

The TWIC initiative requires that all workers at the nation's transportation facilities carry DHS-issued smart-card credentials that include their photographs and a fingerprint template. All of the workers must also undergo criminal background checks.

The final rules published last week spell out the enrollment process for the TWIC program, as well as disqualifying crimes, usage procedures, fees and other requirements for workers, port owners and operators.

Enrollment in the program will start in March "at a small number of ports" and be phased in throughout the year at all ports around the country, the DHS said in a statement.

Once the TWIC cards are issued, the DHS will set a deadline by which workers must carry the cards for unescorted access to secure areas of ports and vessels.

The final rules incorporate suggestions gathered from four public meetings held last year around the country by the TSA and the U.S. Coast Guard, the DHS said.

The decision to move ahead with the TWIC implementation comes just three months after the U.S. Government Accountability Office recommended that the TSA do more testing of both technology and processes before rolling out the new identification system.

In the October report, the GAO auditors expressed concern that tests conducted between August 2004 and June 2005 had been far too limited in scope and did not represent the true scale of the deployment.

For instance, the TSA issued test cards to just 1,700 workers — not the 75,000 it had originally planned to include. The TSA also failed to gather sufficient data about the "operational effectiveness" of biometric card readers in "harsh" maritime conditions, the GAO said.

The DHS concurred with the GAO's findings but would not say whether it would perform the additional testing. The agency did say that it planned to hire a contractor experienced in implementing large projects to handle the TWIC initiative.

The department also noted in its response that it would implement the project in two phases to give port and vessel owners and operators enough time to install biometric and other access-control components.

The DHS said the Coast Guard and other authorized personnel will verify TWIC cards in the first days of the program to ensure that the cards are valid. Until card-reader technology is tested and regulations are issued on access control, facility owners and operators won't be required to use TWIC readers for facility access, the DHS said.

The cards will cost between $139 and $159 each and be valid for five years, according to the DHS.

Atlanta to Roll Out Cognos Analysis Software to City Agency Workers

$2.1M-plus project aims to monitor performance of all departments

BY HEATHER HAVENSTEIN

The city of Atlanta next month will begin rolling out new business intelligence software to all city agencies in a project aimed at providing — for the first time — visibility into their combined performance.

The city plans to roll out Cognos 8 BI software from Ottawa-based Cognos Inc. to about 1,000 users over the next 12 to 18 months, officials said.

Chuck Meadows, Atlanta's chief of budget and fiscal policy, said the software will be used for tasks ranging from assessing the performance metrics for repairing a pothole to automating the aggregation of revenue from parks and recreation programs.

The city is paying $2.1 million for the Cognos software, plus additional consulting fees, which have yet to be determined, for installation. The BI tools will replace Microsoft Excel spreadsheets and performance management software from CorVu Corp. in Edina, Minn.

The city has used the CorVu software since 2002, and although it could be used for basic reporting, "as we had it installed . . . [it] wasn't robust enough" for complex reporting tasks, Meadows said. As a result, many users reverted to manually loading data into Excel spreadsheets to create reports on the performance of individual departments.

Also, although some city departments perform similar functions, they used different techniques to report on those functions, Meadows noted. "We weren't able to supply our budget analysts or the chief operating officer with real good data without pulling that information manually through those various reports and presentations," he said.

Julie Godfrey, global marketing director at CorVu, declined to comment on the city's decision to replace its software.

The city, whose financial department has used Cognos tools for budgeting since 2005, also evaluated BI options from Oracle Corp., Hyperion Solutions Corp. and OutlookSoft Corp. for the new project.

Though the city is currently installing Oracle human resources, finance and procurement software, officials determined that Oracle's BI wouldn't allow departments to create analysis models that mirror the city's unique business processes, Meadows said.

The city's processes vary from monitoring high-end data management procurements to projects such as monitoring the efficiency of garbage collection, Meadows noted.

Costs and Criminals

"[With Cognos], we will be able to look at things like the cost per acre to maintain a park, the cost per work order for field-level operations and the average manpower and materials costs to repair a traffic light or resurface a mile of a city street," Meadows said.

In addition, he said the new BI software promises to allow the city to track criminals from their initial interactions with law enforcement through the judicial and correctional systems.

"Now, we're only able to look at those cases on a department-by-department basis, without the ability to track them across multiple departments," Meadows said.

In addition, he noted, Cognos can easily utilize the city's disparate data sources so that agencies can continue to use existing work order management, fleet management, time management and human resources systems.

Mike Schiff, president and analyst at MAS Strategies in Reston, Va., said that government agencies increasingly see performance management software as a way to help account for expenditures.

"Voters want to know what is happening to their money," he said. "While Sarbanes-Oxley is aiming [for] accountability in the commercial environment, the message certainly wasn't lost on the government. The use of these performance management solutions is accelerating." ▸

BI Drivers

- Many organizations have optimized operational processes using ERP software but have not significantly enhanced decision support and analysis.
- Growing compliance requirements continue to drive information strategies, which increasingly include integrated management reporting provided by BI tools.
- Organizations are seeking integrated financial and management reporting, planning and budgeting, and cost and profitability scorecarding.

SOURCE: IDC, FRAMINGHAM, MASS.

Continued from page 1

Oracle Project

al Pty., an Oracle business partner in Kent Town, Australia. Most of the custom-built software that Oracle developed for the water billing system "will be thrown out," and Oracle will have "no part" in the revived project, Phillis said.

He added, though, that Basis2 will run on top of an Oracle database and work with a set of Oracle's E-Business Suite back-office applications that are used for a variety of city functions, including finance and human resources.

Phillis became acting CIO in September after predecessor Dianah Neff left to work as a consultant, and he was given the job on a permanent basis in late November.

Revised Agreements

Work on the Basis2 implementation began Dec. 11, according to a Prophecy press release. Phillis said that the software is running in test mode and that the billing system should be up and running by next December — which would meet a goal of having it in place before Mayor John Street leaves office in January 2008.

In signing its amended contract, Oracle admitted no wrongdoing but agreed to the $6.9 million in payments and givebacks, Phillis said. Among other things, the deal includes $1.5 million to cover the cost of Prophecy's software, a payback of $1 million for prior consulting services and a promise not to charge Philadelphia for another $1.6 million worth of work that Oracle performed before the project was suspended.

Altogether, the expected cost of Project Ocean has reached about $25 million, including Oracle's givebacks. But Phillis said that the city's expenses have been capped at less than $19 million.

Oracle wouldn't comment on the amended agreement, beyond issuing a statement from Stephen Holdridge, vice president of the company's Oracle Consulting unit. "Oracle and the city have reached agreement on an amendment to the current contract that defines a revised go-forward plan to achieve the city's objectives," Holdridge said in the statement.

Project Ocean is designed to replace a 30-year-old, Cobol-based mainframe application. The project was run by Philadelphia's finance department when it was initially launched in 2003; later it was taken over by the mayor's Office of Information Services. Now it is being jointly overseen by the IT unit and the city's separate water and water revenue departments, Phillis said.

Philadelphia CIO TERRY PHILLIS says most of the custom-built software that Oracle developed for the city's Project Ocean water billing system "will be thrown out."

"I know it's second-guessing, but the city suffered somewhat by not maturing the organization to care for a project like this," he said. Under the new project structure, he added, "we're getting along terrifically. We're singing 'Kumbaya' — not well, but we're singing it."

Philadelphia will be the first Basis2 user in the U.S., and Phillis said he is hiring 20 contractors to work on the deployment, including a program director. But he said he doesn't think the city will need to do any customization of the software, which he and other city officials were able to inspect at a comparable water agency in the U.K. before signing the deal with Prophecy.

Phillis added that in an evaluation of the new features the city wants, such as bill presentation enhancements and expanded customer histories, Basis2 scored higher than rival products from SAP AG and SPL WorldGroup Inc., a San Francisco-based company that Oracle acquired last fall. ▸

DON TENNANT

A Wake-up Call

EARLIER THIS MONTH, we received an e-mail from a reader who wrote in response to an article on our Web site about the possibility that Congress will raise the cap on H-1B visas this year. That the reader felt strongly enough about the issue to take the time to write is commendable, and all of us at *Computerworld* sincerely value and appreciate the feedback.

DON TENNANT is editor in chief of *Computerworld*. Contact him at **don_tennant@computerworld.com**.

That said, I'm going to share with you the verbatim, unedited text of the e-mail, because it demonstrates a point that warrants consideration. It reads as follows:

"Why invest the time and money to go into a hi tech career when your jobs a commodity (commodities are risky and these aren't low skill jobs we're talking about). And they wonder why people in the US aren't chosing those careers and there's shortage? Show's how stupid they think we are. As for the future I can only speak about my 3 kids, I'm advising them away for the computer tech type careers."

I can honestly say that the correspondent's inexplicable failure to demonstrate even a basic ability to communicate on a professional level doesn't cause me to value or appreciate his feedback any less. But I don't pay this guy's salary or depend on the quality of his work. The fact is, we receive a lot of correspondence like this from IT professionals, and somebody needs to give them a wake-up call. So here it is:

Good morning. The world and your profession have dramatically changed. You are competing against the best and brightest from all over the world, and it is essential that everything you do in your capacity as an IT professional be characterized by a demonstrated commitment to quality. If any standard other than excellence is acceptable to you, you stand very little chance of progressing in your career. Have a nice day.

Obviously, it's impossible to accurately assess the capacity and work ethic of an individual based on the effort he expends in providing feedback about an article he has read online. But when you consider the critical nature of effective communication and how essential that skill is in an IT environment, it's very difficult to entirely dismiss such a clear demonstration of an individual being satisfied with mediocrity.

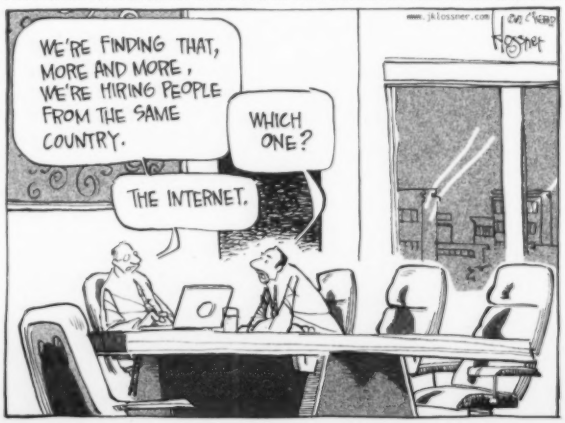
No, I don't value this reader's viewpoint any less, but this e-mail is enough to tell me that he just doesn't get it. Anyone who is willing do be associated with any undertaking — even one as relatively trivial as this — that is so poorly executed simply does not understand how very high the employment stakes are.

When you read our feature titled "Swimming in the Global Talent Pool" (page 25), you'll see what I'm talking about. Like it or not, employers are feeling less and less constrained by political or geographical boundaries when they're searching for IT skills. And as one recruiting consultant put it, "If you're 45 and plan to work until you're 65, you're going to be forced to embrace this."

Clearly, not everyone has the wherewithal to follow the lead of Matt Sorge, a U.S. citizen and MIT graduate who's gaining global marketability by undergoing training in India. But everyone does have the wherewithal to demand excellence of himself.

Expressions of exasperation and denunciations of IT as a career field from people who find mediocrity acceptable are getting tiresome. Gartner analyst Diane Morello nailed the problem with her observation that "many people sleepwalk through their careers." The "good enough" attitude inherent in that just isn't good enough anymore. It's a shame that hasn't yet dawned on our H-1B-fearing correspondent. ▸

Don Tennant


WE'RE FINDING THAT, MORE AND MORE, WE'RE HIRING PEOPLE FROM THE SAME COUNTRY.
WHICH ONE?
THE INTERNET.
www.jklossner.com
Jon Klossner

JOHN D. HALAMKA

Conservation Of Aggravation

THE FIRST LAW of thermodynamics tells us that energy is neither created nor destroyed; it is simply converted from one form to another.

For IT professionals, I believe in the first law of project dynamics: Aggravation is neither created nor destroyed; it is simply converted from one project to another.

As CIO of Harvard Medical School and Beth Israel Deaconess Medical Center, I oversee 200 projects a year. Here are a few examples of the Law of Conservation of Aggravation.

In 2003, we had a growing problem with spam, and I was receiving many requests each day to implement a centralized spam filter. We initially tried SpamAssassin but found that it didn't work well in a medical environment: It couldn't distinguish between advertisements for enlarging body parts and physician referrals to clinics for diseases affecting body parts. We wanted very few false positives (real mail marked as spam and trapped by the filter), so we implemented Brightmail, now a Symantec product. It has worked well, but I now receive many requests a day to relax the spam filters because they are blocking "important business e-mail" such as eBay receipts, newsletters from professional sports organizations and casual correspondence (Subject: Hi!) from friends and relatives. Aggravation has been conserved.

JOHN D. HALAMKA is CIO at CareGroup Healthcare System, CIO and associate dean for educational technology at Harvard Medical School, chairman of the New England Health Electronic Data Interchange Network, CIO of the Harvard Clinical Research Institute and a practicing emergency physician. Contact him at **jhalamka@caregroup.harvard.edu**.

In 2002, Beth Israel Deaconess experienced a network outage that lasted a day and a half after a misperforming application flooded the network and overwhelmed the spanning tree algorithm in our older network gear. In 2003, SQL Slammer and other Microsoft-related security problems caused server downtime. As a result,

I spent a year creating highly redundant state-of-the-art networks, server clusters and virtualized central storage. Uptime in the period covering 2004 to the present has exceeded 99.9% for all applications and services.

Of course, on rare occasions, I need to take down an application to upgrade hardware or firmware. But trying to find an acceptable 15-minute window to take down IT services for a large metropolitan hospital is nearly impossible. Sunday at 4 a.m.? Trauma patients could be arriving in the ER then. By providing 99.9% reliability, we have made downtime unacceptable. Aggravation has been conserved.

In 2006, we implemented electronic prescribing for our clinicians. We replaced unreadable, handwritten and free-text typed instructions ("Take some Tylenol") with structured, standards-based, secure electronic messaging from doctor to pharmacy. Clinicians welcomed the idea of more accurate, safer medication practices that would require fewer callbacks from pharmacists with questions about handwritten prescriptions.

However, clinicians rapidly discovered that older prescriptions that had been written before the new system was implemented with its requirements for structured prescribing had to be retyped. The computer couldn't automatically convert "Take some Tylenol" to "Take Tylenol 1-2 tabs every 4-6 hours as needed for pain." The clinicians wanted both accuracy and ambiguity to be acceptable simultaneously. Aggravation has been conserved.

Writing this has made me feel much better. But will the catharsis of having shared the challenges of being an IT professional lead to less aggravation? Nope. Within 48 hours of this column being published, 25 salespeople will call or e-mail me (note that my e-mail address is published as well) to tell me about their companies' antispam applications, which can block all bad e-mails while allowing the e-mail of the eBay/sports/casual variety to get through; or about their highly reliable infrastructure components, which require no maintenance; or about e-prescription systems that do everything for everyone. Some of these e-mailed sales offers will make it through the spam filter. (Do these folks believe that CIOs have the time to read unsolicited sales e-mails?) Some salespeople will pester my assistant on the phone to the point that she will whimper in frustration. I have no doubt that aggravation will be conserved! ▸

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READERS' LETTERS

SOA: The More Things Change . . .

WHILE THE underlying technologies that enable a service-oriented architecture are new, such as the Internet and Java, neither the concept nor the best method of carrying it through is ["As Ye SOA, So Shall Ye Reap," Opinion, Oct. 30]. Modular software construction was identified as the key to the economical construction of stable code as long as 40 years ago. The so-called waterfall is a perversion of the necessity to develop working code in a series of temporal steps, because you must know what a block of code is to do before you can correctly design it, you must design it to ensure it will do exactly and only what you want it to do, you cannot implement an algorithm that has not been designed, and you cannot test code until it is written. These steps are not an "approach"; they are the only alternative to making it all up as you go, an endless cycle of trial and error – mostly error.

It is not, however, necessary to design all the code before any code is written, nor is it prohibited to go back to the beginning if the users, while watching testing, decide that they gave the wrong requirements at the start. The most stringent of all waterfall paradigms, Department of Defense Standard 2167A, does not prohibit iteration – it provides for it. The real paradigm is not a waterfall; it is a spiral – whenever necessary, the process reverts to an earlier point and is redone from there. In point of fact, the more time, effort and care invested in specification and design, the less effort will be required in testing and documentation, and the less rework will be needed.

As for silos of developers, that too is not a "practice" but an artifact. Few people are as comfortable and skilled with every step in the process as they are with their favorite step, so they become specialists: business analysts, architects, coders and testers, some of whom communicate poorly with others due to personality differences.

It is the obligation of the project manager to ensure that these personal matters do not obstruct full and effective communication among all members of the team, whether introvert or extrovert, linear or gestalt thinker, business person or technology enthusiast. That the product of one "step" may be thrown at the workers performing the next is not a feature of the software development life cycle; it is a bug.

The key to SOA, as with all systems, is architectural granularity.

Whether or not the code is intended to be reused, it will be reused, sooner or later, for something, and it will be easier to reuse and easier to maintain if the system is highly cohesive and loosely coupled – each module (or service) does essentially one useful, frequently needed and sharply defined function, and each module (or service) is essentially independent in function and operation from every other. The necessity for sound requirements analysis and thorough design is thus even greater, if that were possible, for SOA to achieve its benefits. The alternative is the equivalent of Windows "DLL hell," a nightmare tangle of proliferated "services," many of them partly redundant, none of them truly independent, whose collective behavior is unstable over a time frame as short as one week.

So, as the French say, "although everything changes, everything stays the same." SOA is the latest technical means for implementing essentially the same thing – structured code that does precisely what it is supposed to, operates correctly for long, continuous periods and does not get more expensive to change as it gets older.

David P. Vernon
Tucson, Ariz.

Techies Need to Be Managed by Techies

I AGREE WITH everything that "C.J. Kelly" wrote about the value of technical skills in management positions ["Can a Manager Be a Techie and Survive?" Security Manager's Journal, Nov. 20], with one caveat. I came up through the ranks as a programmer and network engineer. I have learned that as we move up through management, it's important to change our perspective on the world.

As a programmer or engineer, I saw things as a series of technical challenges. Reaching the first layer of management, I had to begin to see the bigger picture – not all solutions or actions I took could be technology-driven. Business objectives had to be considered. As a director, the vast majority of my time is spent strategizing and building relationships. As long as IT managers understand what matters most to the business as they progress up the ladder, keeping their technical skills honed is not a bad idea.

Tom Otzak
Director, information security, HCR Manor Care, Toledo, Ohio, tolzak@hcr-manorcare.com

I'VE NOTICED that people who think they can manage others without any real knowledge of what their reports do tend to be the sort of people who think the whole world is a matter of opinion. In the tech world, a boss who doesn't have any technical sense is nothing but a liability. What I don't understand is why this idea that nontechies can manage techies is so common in the computer technical field. I don't think it's that way in, say, construction. If it were, we'd have a lot more buildings and bridges simply collapsing a few weeks after they were built.

Paul Davis
Computer support technician, Fort Collins, Colo.

I RECEIVED MY MBA in information systems in May. I would like to be a manager in IT security, but I realize that I need technical as well as managerial tools. I don't want to be one of those managers who says, "Do this," and then can't figure out how "this" gets done when there's a problem. To fix that, I will be working on certifications in security and networking to get some of the technical background necessary to successfully merge the two aspects of the position.

Jennifer Hawk
Philadelphia, jatalb@yahoo.com

I'VE INVESTED an incalculable amount of time on my technical skills. I've always found it difficult to work with managers who aren't at least somewhat technical, but those who could get in the trenches with me to do what needed to be done are few and far between. While I can work with a nontechnical manager, I find that I always am thinking, "How can this person truly evaluate my technical skills?" Or, "How can this person help make the decisions that need to be made?"

Being able to speak both geek and business is very valuable – to both management and the implementers.

Justin F. Knox
Network administrator, East Hampton, Conn.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 1 Speen Street, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

QUICKSTUDY
Graphic File Formats
Ever wonder what the file extensions .bmp, .gif, .jpg and .tif really mean? This tutorial explains the pros and cons of each graphics file format. **PAGE 22**

SECURITY MANAGER'S JOURNAL
Laying a New Year's Course for Security
A new year is a time for a fresh start. What better time to decide which projects will get attention? C.J. Kelly has already given a thumbs up to encryption and a thumbs down to a Vista upgrade. **PAGE 23**

OPINION
Microsoft Excels With Four Business Models
Mark Willoughby says Microsoft has joined an elite club of companies that can make money in four different business models. **PAGE 24**

Smart PRINTERS, Scary PRINTERS

THE BLASTER WORM hit McCormick and Co. hard and fast. It entered the famous spice company through a service provider connection and ripped across plants and offices in a matter of hours. What was most vexing, however, was that the virus kept coming back on disinfected network segments.

Upon further investigation, it turned out that Blaster, as well as some instances of the Sasser worm, were trying to repropagate from infected network printers.

"Printers were just one of several types of systems contributing to the nightmare at the time," says Michael Rossman, who'd just taken over as global director of IT services and information security at McCormick at the time of the worm outbreak in 2003. "Blaster went to all our PCs, our radio frequency units, our handhelds. And, we learned belatedly, it also spread to our printers."

Blaster and Sasser gave IT execs some religion about the vulnerabilities network printers can introduce to corporate networks, Rossman says. Since then, however, there has been little evidence of printer-based attacks spreading across large networks. Corporate IT

Continued on page 20

Networked printers — **yes, printers** — can open your corporate network to malicious attacks. They need security patches, too.

_INFRASTRUCTURE LOG
_DAY 44: This lack of productivity is out of control. What we're using isn't working. Gil's had enough. He moved everyone into one cubicle. A "collaboration" cubicle. We need a better idea.
_DAY 46: I'm going with IBM Lotus® Notes® and Domino®. It's more than e-mail; it's an open platform designed for collaboration. It has proven security features and productivity enhancers like document sharing and custom app development. And it's flexible enough to integrate across multiple platforms, including J2EE™ and Linux®.
_OK, who sat on my lunch?
IBM
Lotus.
Download the Lotus Notes & Domino demo at:
IBM.COM/TAKEBACKCONTROL/COLLABORATION

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Continued from page 18

shops haven't been concerned about printer security. Instead of patching and hardening printers, they have been complacent. Security experts say that printers are loaded with more complex applications than ever, running every vulnerable service imaginable, with little or no risk management or oversight.

If these systems aren't hardened, users may soon find their printers rendered inaccessible by attackers, their valuable documents heisted or their printers turned into remote-controlled bots — launching pads for further attacks.

The problem, of course, is that printers aren't on the agendas of many security managers. "It's been my experience that these devices have been completely overlooked from a risk management perspective," says security researcher Brendan O'Connor. "They're installed. They work. And nobody pays them any attention until it's time to install a new paper tray or print cartridge."

Not So Dumb

In essence, networked printers need to be treated like servers or workstations for security purposes — not like dumb peripherals.

At the Black Hat conference in Las Vegas in August, O'Connor delivered a blow-by-blow presentation on how to bypass authentication, inject commands at the root level and create shell code to take over printers in Xerox Corp.'s WorkCentre line of printers, which run on Linux operating systems.

He described the kinds of mischief you could do with a compromised printer, including password-catching, password-snarfing (changing passwords), hijacking functions, grabbing print jobs and playing with a billing program.

O'Connor, who says he has proved in his research lab that these hacks are possible, showed a video of himself exploiting these vulnerabilities in his lab during his Black Hat presentation.

"There are actually a quite a few attack vectors in these printers," says O'Connor, who by day is a security engineer at a Midwest financial services company he wouldn't name. "I shared a couple in my talk, and I released a couple others privately to Xerox."

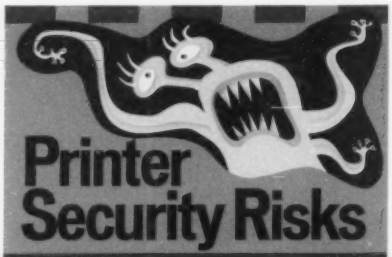
Xerox thanked O'Connor for his research and issued a patch, according to the IDG News Service, though O'Connor says vulnerabilities remain.

The question remains how many IT departments apply security patches to their printers. "One of the reasons this is a particularly nasty problem is that people don't update their printer software," security technologist Bruce Schneier wrote in his blog. "And what about printers whose code can't be patched?" asked Schneier, who is chief technology officer at BT Counterpane Internet Security Inc. in Mountain View, Calif.

The apathy toward printer security isn't surprising, since printer attacks have been few and far between in recent years. That's mostly because, right now, it's easier just to hack PCs and laptops, says Dean Turner, senior manager for security response at Symantec Corp.

But as those systems become more secure through tougher security standards and best practices, attackers will turn their tools to the next low-hanging fruit, Turner says. And unprotected printers are a logical target.

Last year, Symantec logged 12 new security vulnerabilities for five network printer brands: Brother, Canon, Epson, Fujitsu, Hewlett-Packard, Lexmark and Xerox. Twelve may seem like an insignificant number, but keep in mind that it's greater than the number of printer-specific vulnerabilities found in 2005 (10). And the number of such vulnerabilities found in the past two years account for nearly half of all printer vulnerabilities identified since 1997 (52).



Printer Security Risks

RISK Network printers have more vulnerable services running on them than networked PCs do.

POSSIBLE ATTACKS	SOLUTIONS
■ Remote code execution	■ Disable services you don't need.
■ Sniffing (for passwords and network information)	■ Use vendor-provided document protection features.
■ Capture of intellectual property from documents in queue or in local memory	■ Change default passwords and encrypt them.
■ Root control of printer services	

RISK Network printer applications have a growing number of vulnerabilities.

POSSIBLE ATTACKS	SOLUTIONS
■ Buffer overflows	■ Perform better code review.
■ Cross-site scripting and other common attack methods that disable an application and gain root control	■ Adopt more secure application development processes.

RISK Web interfaces, Web servers, Web pages and e-mail are opening printers directly to the World Wide Web.

POSSIBLE ATTACKS	SOLUTIONS
■ Hijacking or impersonating a remote administrator or user session	■ Turn off Web connections unless absolutely needed.
■ Malicious code injection	■ Use strong authentication for remote administration.
■ Remote control of printer	■ Change default passwords.

This means we're in the preattack stage with printers, says Chris Wysopal, former director of research and development at @Stake Inc., a security vulnerability assessment firm that was acquired by Symantec. Printers, he says, are on the radar screen of the hacking community, so it's only a matter of time before PCs and workstations get hardened and attackers start delivering attacks to printers. Wysopal recalls that while working in the vulnerability research lab at @Stake, he hacked into a printer through the infrared port and changed the administrator password.

There's a common impression that printers are vulnerable to attacks only from inside a company's LAN or via remote log-in to a company's virtual private network, researchers say. But that's not true, says Alan Paller, research director at the SANS Institute in Bethesda, Md.

"Five years ago, four HP Jetdirect printer controllers were used in a denial-of-service attack that took down an ISP in New Mexico," says Paller. "And more recently, shared printers have become back doors that allow attackers to bridge from low-security areas to high-security areas."

All it takes is any remote code-execution vulnerability, such as a buffer overflow or cross-site scripting weakness, to spread a bot to the printer or use the printer as a launching pad for other attacks, says Lamar Bailey, senior operations manager of X-Force, a threat analysis service of Atlanta-based IBM Internet Security Systems. ISS keeps a dozen printers in its security lab so it can test new vulnerabilities.

And, despite opinions to the contrary, network printers are also already at risk of direct Internet attacks, say researchers. The first, and most obvious, link is when organizations put network printers outside the corporate firewall to make remote printing easier for employees. This is something O'Connor, Wysopal and Turner all say they have seen too frequently in their vulnerability assessments for clients.

Furthermore, online print-from-anywhere services are also direct points of attack from the Web. Some of these interfaces include embedded Web servers and/or Web pages with IP addresses. This is why, as part of its risk management policy, McCormick turns off remote print services, says Rossman.

Patch Management

Of all protective measures to be taken on these embedded devices, system hardening and patch management are the most critical, according to security experts. McCormick relies on its printer vendors to distribute firmware updates and software patches, says Rossman, while other administrative chores are handled in-house. But Paller says vendors, in their attempt to offer more services and uses to their customers, actually make it hard to turn off default services and change passwords.

Vendors have made some advances in filtering, document protection and access controls, but they've made little headway in comprehensive patch management and system-hardening processes. O'Connor says vendors aren't always forthcoming with new vulnerability and patch information, making it difficult for IT to manage what is still mostly a manual process.

Until vendors work these things out and users start treating printers like the points of risk they are, network printers will continue to be sitting ducks, waiting for attackers to pounce.

"Network printers are large print devices with embedded Windows systems that are interacting with the network just like any other Windows-based system," says Rossman. "They need to be secured."

Radcliff is a freelance security writer in Northern California. She can be reached at deb@radcliff.com.

_INFRASTRUCTURE LOG
_DAY 18: Everything is frozen. It's our processes. They're inflexible. We can't respond to change.
_Why did we lock ourselves in like this? Brrrr.
_DAY 19: A way out. IBM WebSphere middleware for Business Process Management. It lets us streamline business tasks. We can test our processes before we roll them out and monitor performance once they're deployed, and reuse is easy because it's based on a service oriented architecture.
_Everything's unfrozen now. Wow, it's good to feel my toes again.
IBM
WebSphere
Take the BPM with SOA Assessment at:
IBM.COM/TAKEBACKCONTROL/PROCESS

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Graphic File Formats

DEFINITION

Graphic images are stored digitally using a small number of standardized **graphic file formats**, including bit map, TIFF, JPEG, GIF, PNG; they can also be stored as raw, unprocessed data.

BY RUSSELL KAY

THERE ARE likely billions of graphic images available on the World Wide Web, and with few exceptions, almost any user can view any of them with no difficulty. This is because all those images are stored in what amounts to a handful of file formats. Before discussing the principal graphics file formats, however, we need to review the two fundamental types of graphics: raster and vector.

A raster image is like a photo in your newspaper. Look closely and you'll see it's made up of equally spaced round dots in several distinct colors. But if you look at an ad featuring a line drawing or, better yet, a banner headline, you won't see an interrupted line of dots but a solid image bounded by smooth curves. Those are vector graphics. Many graphics are created as vector graphics and then published as raster images.

Most graphics that we see on-screen, and many that are printed on paper, are actually structured as rectangular grids of pixels or colored dots. A full-color image requires more color information than a black-and-white image. Some types of graphics use geometric functions that allow them to be scaled up or down in size.

One final distinction should be made between how an image is stored (its graphic file format) and how it is generated for viewing by the end user. Most devices that output images, whether they be monitors, TVs or ink-jet printers, actually produce raster output. They create successive minuscule lines, each consisting of a line of dots of different colors (and perhaps sizes) that end up on the final page as both images and letters. Before the advent of modern high-resolution displays, there were CRT devices that actually produced true vector output, but those are mainly history now. So we need to provide our monitors or printers with sequences of all those colored dots. A graphic that is already rasterized will save time and electrons because it doesn't need further processing by the computer.

QUICK STUDY

BMP

The simplest way to define a raster graphic image is by using color-coded information for each pixel on each row. This is the basic bit-map format used by Microsoft Windows. The disadvantage of this type of image is that it can waste large amounts of storage. Where there's an area with a solid color, for example, we don't need to repeat that color information for every new contiguous pixel. Instead, we can instruct the computer to repeat the current color until we change it. This type of space-saving trick is the basis of compression, which allows us to store the graphic using fewer bytes. Most Web graphics today are compressed so that they can be transmitted more quickly.

Some compression techniques will save space yet preserve all the information that's in the image. That's called "lossless" compression. Other types of compression can save a lot more space, but the price you pay is degraded image quality. This is known as "lossy" compression.

TIFF

Most graphics file formats were created with a particular use in mind, although most can be used for a wide variety of image types. Another common bit-mapped image type is Tagged Image File Format, which is used in faxing, desktop publishing and medical imaging. TIFF is actually a "container" that can hold bit maps and JPEGs and allows (but doesn't require) various types of compression.

JPEG

The Joint Photographic Experts Group created the JPEG standard in 1990 for the efficient compression of photographic images. JPEG allows varying levels of lossy compression, letting you trade off quality against file size. Progressive JPEG is a way to rearrange the graphic data to permit a rough view of the entire image even when only a small portion of the file has been downloaded. The JPEG standard includes 29 distinct coding processes, but not all of them need to be used. If an image has flat areas of single color that transition sharply to contiguous areas, JPEG doesn't work as well as GIF.

JPEG 2000 is a wavelet-based standard designed to supersede the original. It offers improved compression, including lossless compression, and supports multiple resolutions in a single file, but it has only limited support in current Web browsers.

GIF

The Graphic Interchange Format takes an image and re-creates it using a palette of no more than 256 colors. These palettes can be totally different for different images. GIF is a very efficient format that achieves very good compression for nonphotographic images. GIF also permits the creation of animated images by allowing a file to contain several different frames (each with its own palette) and to switch between them with a specified delay. In addition, GIF images are one of the few types that can have a transparent background, meaning that there's no need to always display a rectangular area.

GIF was once quite popular, but in 1995, it became the centerpiece of a patent dispute that clouded the issue of who could use what. The patent in question was for the LZW lossless compression algorithm; it expired in 2003.

PNG

Portable Network Graphics is a standard developed in 1996 as an alternative to and improvement on GIF, but without the patent issues and palette restrictions. PNG can compress an image more than GIF and supports improved background transparency/opacity but allows only single images, without animation.

Raw Data

As digital photography becomes ubiquitous and multimegapixel digital cameras grow more common, you may hear more about raw images. Most inexpensive, consumer-grade digital cameras store images as JPEG files (technically in EXIF format, a form of JPEG) that involve the loss of some detail. This was done initially to keep file sizes small, when flash memory storage was much more expensive than it is now.

Some higher-end cameras now offer the ability to save all image information as raw, unprocessed data in a nonstandardized format that takes more storage space but prevents the loss of subtle detail.

Raw images can be edited with professional-grade software and converted to JPEGs for printing or other forms of distribution.

Kay is a Computerworld *contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.*

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Common Graphics File Formats Compared

TYPE	FILE EXTENSION	COMPRESSION METHODS	PRINCIPAL APPLICATION/USAGE	PATENTED?	ORIGINATED BY
Graphics Interchange Format	.gif	Lempel-Ziv-Welch (LZW) algorithm	Flat-color graphics, animation	Expired	Compuserve
Joint Photographic Experts Group	.jpg	Loses some data	Photographic images	Disputed	Joint Photographic Experts Group
Portable Network Graphics	.png	Lossless	Replacement for GIF	No	World Wide Web Consortium
Raw negative	Various	None	High-end digital cameras	No	Individual equipment makers
Tagged Image File Format	.tif	Various or none	Document imaging, scanning	No	Adobe Systems Inc.
Windows bit map	.bmp	None	On-screen display	No	Microsoft Corp.

SOURCE: ADAPTED FROM "COMPARISON OF GRAPHICS FILE FORMATS," AT WIKIPEDIA.ORG

Laying a New Year's Course for Security

It's time for a fresh start. What better opportunity to decide which projects will get attention in coming months? By C.J. Kelly

SECURITY MANAGER'S JOURNAL

DECEMBER WAS a complete blur for me. After being away for training and a vacation, I'm having a difficult time getting my head into what needs to be done at work in this new year. Things aren't much better at home, where the Christmas tree stands almost bare, waiting to be put out of its misery, and unwrapped presents are still scattered about. At least I cleaned my office before I went away.

But my orderly desk disguises the fact that all the things that were not completed last year are awaiting my attention. Managing both IT and security gives me a lot of infrastructure components to think about, but I like it that way. I can take a more holistic approach.

Let's see: I have to prepare the IT spending plan for the state agency, complete the employee reviews, decide on a document management vendor, define a comprehensive encryption initiative, bring the virtual private network online among our branch offices, prepare another security-awareness training module, decide whether dual-core technoiogy has a place on the desktop, prepare for Vista (or not) and consider whether NAC (Cisco's Network Admission Control technology) is worth pursuing, as well as how NAP (Microsoft's Network Access Protection) fits into the picture. Oh, and this is the month the state auditors will peek into our infrastructure.

I need to prioritize, but that isn't easy when everything seems equally important. Some people get stuck in the details, but I seem to get stuck on the big picture. Making decisions about information and security technologies is similar to solving a riddle or a puzzle. The clues have to be examined and the pieces have to fit together to find the best solution possible. Even then, the rate of technology change can invalidate carefully made decisions.

But I've learned that there always comes a point when you have to say, "All right, I've reviewed as much information as is reasonable. Now I have to make some decisions, right or wrong." So, right or wrong, here's what I see for us this year:

- We are not going to upgrade to Vista.
- We are going to upgrade to dual-core technology.
- We are going to encrypt network traffic, file systems and databases.
- We are going to find a document management system that is secure and easy to use.
- We are going to get a handle on log file management.
- We are going to investigate unified threat management systems.
- We are going to provide security awareness training in a fun, informative and consistent way.
- We are going to understand NAC vs. NAP and evaluate our choices.

> Right or wrong, here's what I see for us this year.

A Closer Look

I don't know yet exactly how we are going to accomplish these things. And it's not clear which technologies we will choose. There are dozens of vendors out there whose products promise to solve our problems.

For instance, do we go with AMD or Intel for dual-core technology? We've standardized on AMD processors, but Intel seems to be storming ahead. Will any of our current applications make use of dual-core technology, or are we just preparing for a future that may actually include quad- and even eight-core processors?

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SECURITY LOG

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Graphic File Formats

DEFINITION

Graphic images are stored digitally using a small number of standardized **graphic file formats**, including bit map, TIFF, JPEG, GIF, PNG; they can also be stored as raw, unprocessed data.

BY RUSSELL KAY

THERE ARE likely billions of graphic images available on the World Wide Web, and with few exceptions, almost any user can view any of them with no difficulty. This is because all those images are stored in what amounts to a handful of file formats. Before discussing the principal graphics file formats, however, we need to review the two fundamental types of graphics: raster and vector.

A raster image is like a photo in your newspaper. Look closely and you'll see it's made up of equally spaced round dots in several distinct colors. But if you look at an ad featuring a line drawing or, better yet, a banner headline, you won't see an interrupted line of dots but a solid image bounded by smooth curves. Those are vector graphics. Many graphics are created as vector graphics and then published as raster images.

Most graphics that we see on-screen, and many that are printed on paper, are actually structured as rectangular grids of pixels or colored dots. A full-color image requires more color information than a black-and-white image. Some types of graphics use geometric functions that allow them to be scaled up or down in size.

One final distinction should be made between how an image is stored (its graphic file format) and how it is generated for viewing by the end user. Most devices that output images, whether they be monitors, TVs or ink-jet printers, actually produce raster output. They create successive minuscule lines, each consisting of a line of dots of different colors (and perhaps sizes) that end up on the final page as both images and letters. Before the advent of modern high-resolution displays, there were CRT devices that actually produced true vector output, but those are mainly history now. So we need to provide our monitors or printers with sequences of all those colored dots. A graphic that is already rasterized will save time and electrons because it doesn't need further processing by the computer.

QUICK STUDY

BMP

The simplest way to define a raster graphic image is by using color-coded information for each pixel on each row. This is the basic bit-map format used by Microsoft Windows. The disadvantage of this type of image is that it can waste large amounts of storage. Where there's an area with a solid color, for example, we don't need to repeat that color information for every new contiguous pixel. Instead, we can instruct the computer to repeat the current color until we change it. This type of space-saving trick is the basis of compression, which allows us to store the graphic using fewer bytes. Most Web graphics today are compressed so that they can be transmitted more quickly.

Some compression techniques will save space yet preserve all the information that's in the image. That's called "lossless" compression. Other types of compression can save a lot more space, but the price you pay is degraded image quality. This is known as "lossy" compression.

TIFF

Most graphics file formats were created with a particular use in mind, although most can be used for a wide variety of image types. Another common bit-mapped image type is Tagged Image File Format, which is used in faxing, desktop publishing and medical imaging. TIFF is actually a "container" that can hold bit maps and JPEGs and allows (but doesn't require) various types of compression.

JPEG

The Joint Photographic Experts Group created the JPEG standard in 1990 for the efficient compression of photographic images. JPEG allows varying levels of lossy compression, letting you trade off quality against file size. Progressive JPEG is a way to rearrange the graphic data to permit a rough view of the entire image even when only a small portion of the file has been downloaded. The JPEG standard includes 29 distinct coding processes, but not all of them need to be used. If an image has flat areas of single color that transition sharply to contiguous areas, JPEG doesn't work as well as GIF.

JPEG 2000 is a wavelet-based standard designed to supersede the original. It offers improved compression, including lossless compression, and supports multiple resolutions in a single file, but it has only limited support in current Web browsers.

GIF

The Graphic Interchange Format takes an image and re-creates it using a palette of no more than 256 colors. These palettes can be totally different for different images. GIF is a very efficient format that achieves very good compression for nonphotographic images. GIF also permits the creation of animated images by allowing a file to contain several different frames (each with its own palette) and to switch between them with a specified delay. In addition, GIF images are one of the few types that can have a transparent background, meaning that there's no need to always display a rectangular area.

GIF was once quite popular, but in 1995, it became the centerpiece of a patent dispute that clouded the issue of who could use what. The patent in question was for the LZW lossless compression algorithm; it expired in 2003.

PNG

Portable Network Graphics is a standard developed in 1996 as an alternative to and improvement on GIF, but without the patent issues and palette restrictions. PNG can compress an image more than GIF and supports improved background transparency/opacity but allows only single images, without animation.

Raw Data

As digital photography becomes ubiquitous and multimegapixel digital cameras grow more common, you may hear more about raw images. Most inexpensive, consumer-grade digital cameras store images as JPEG files (technically in EXIF format, a form of JPEG) that involve the loss of some detail. This was done initially to keep file sizes small, when flash memory storage was much more expensive than it is now.

Some higher-end cameras now offer the ability to save all image information as raw, unprocessed data in a nonstandardized format that takes more storage space but prevents the loss of subtle detail.

Raw images can be edited with professional-grade software and converted to JPEGs for printing or other forms of distribution.

Kay is a Computerworld *contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.*

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Common Graphics File Formats Compared

TYPE	FILE EXTENSION	COMPRESSION METHODS	PRINCIPAL APPLICATION/USAGE	PATENTED?	ORIGINATED BY
Graphics Interchange Format	.gif	Lempel-Ziv-Welch (LZW) algorithm	Flat-color graphics, animation	Expired	Compuserve
Joint Photographic Experts Group	.jpg	Loses some data	Photographic images	Disputed	Joint Photographic Experts Group
Portable Network Graphics	.png	Lossless	Replacement for GIF	No	World Wide Web Consortium
Raw negative	Various	None	High-end digital cameras	No	Individual equipment makers
Tagged Image File Format	.tif	Various or none	Document imaging, scanning	No	Adobe Systems Inc.
Windows bit map	.bmp	None	On-screen display	No	Microsoft Corp.

SOURCE: ADAPTED FROM "COMPARISON OF GRAPHICS FILE FORMATS," AT WIKIPEDIA.ORG

Laying a New Year's Course for Security

It's time for a fresh start. What better opportunity to decide which projects will get attention in coming months? By C.J. Kelly

DECEMBER WAS a complete blur for me. After being away for training and a vacation, I'm having a difficult time getting my head into what needs to be done at work in this new year. Things aren't much better at home, where the Christmas tree stands almost bare, waiting to be put out of its misery, and unwrapped presents are still scattered about. At least I cleaned my office before I went away.

SECURITY MANAGER'S JOURNAL

But my orderly desk disguises the fact that all the things that were not completed last year are awaiting my attention. Managing both IT and security gives me a lot of infrastructure components to think about, but I like it that way. I can take a more holistic approach.

Let's see: I have to prepare the IT spending plan for the state agency, complete the employee reviews, decide on a document management vendor, define a comprehensive encryption initiative, bring the virtual private network online among our branch offices, prepare another security-awareness training module, decide whether dual-core technology has a place on the desktop, prepare for Vista (or not) and consider whether NAC (Cisco's Network Admission Control technology) is worth pursuing, as well as how NAP (Microsoft's Network Access Protection) fits into the picture. Oh, and this is the month the state auditors will peek into our infrastructure.

I need to prioritize, but that isn't easy when everything seems equally important. Some people get stuck in the details, but I seem to get stuck on the big picture. Making decisions about information and security technologies is similar to solving a riddle or a puzzle. The clues have to be examined and the pieces have to fit together to find the best solution possible. Even then, the rate of technology change can invalidate carefully made decisions.

But I've learned that there always comes a point when you have to say, "All right, I've reviewed as much information as is reasonable. Now I have to make some decisions, right or wrong." So, right or wrong, here's what I see for us this year:

- We are not going to upgrade to Vista.
- We are going to upgrade to dual-core technology.
- We are going to encrypt network traffic, file systems and databases.
- We are going to find a document management system that is secure and easy to use.
- We are going to get a handle on log file management.
- We are going to investigate unified threat management systems.
- We are going to provide security awareness training in a fun, informative and consistent way.
- We are going to understand NAC vs. NAP and evaluate our choices.

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A Closer Look

I don't know yet exactly how we are going to accomplish these things. And it's not clear which technologies we will choose. There are dozens of vendors out there whose products promise to solve our problems.

For instance, do we go with AMD or Intel for dual-core technology? We've standardized on AMD processors, but Intel seems to be storming ahead. Will any of our current applications make use of dual-core technology, or are we just preparing for a future that may actually include quad- and even eight-core processors?

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BRIEFS

Linux Server Debuts For HPC Clusters

■ Penguin Computing Inc. in San Francisco last week released the Altus 600 Linux server, which is designed for high-performance computing (HPC). It comes with one or two AMD Opteron 2000 series processors and up to 64GB of memory, and it excludes server features not normally needed in an HPC cluster environment. The server includes onboard Gigabit Ethernet, Serial ATA hard drives and a PCI Express x16 expansion slot for high-speed cluster interconnects. Dual-processor configurations start at a list price of $1,499 and run up to $150,000 for 64-node clusters. The servers use the vendor's Scyld clustering software and the CentOS distribution of Linux.

Matrox Releases Multimonitor Card

■ Matrox Graphics Inc. in Montreal last week announced the DualHead2Go Digital Edition video card, which lets laptop and desktop computer users connect two side-by-side monitors with digital outputs. The external video card connects to the VGA output of compatible notebook or desktop computers and spreads the user's on-screen desktop across two digital displays. Users can work with multiple full-screen documents or applications simultaneously, eliminating the need to frequently open, close or minimize applications, the vendor says. The device, which retails for $229 and will be available by the end of March, includes support for Windows Vista, XP and 2000 as well as Mac OS X.

Treo 750 Operates On Cingular 3G Net

■ Palm Inc. and Cingular Wireless LLC announced the Treo 750, the first smart phone to run on Cingular's 3G/UMTS network in the U.S. and abroad. The new device, which began shipping last week, runs on Windows Mobile 5.0. Pricing is $399.99 with a two-year contract and rebate.

MARK WILLOUGHBY

Microsoft Excels With Four Business Models

IT'S TOUGH to cheer for a company with $46 billion in revenue, the monopoly power to dictate technology, and net profit margins consistently north of 30%. Microsoft doesn't make friends easily. Nonetheless, Microsoft's risky investments in new IT markets are remarkable. The company is poised to display the IT industry's best technology business model execution in 2007.

MARK WILLOUGHBY, CISSP, is a 20-year IT industry veteran and journalist. Contact him at **willoughby@ earthlink.net.**

Only the very best managed companies can sustain profitability in two technology business models. It takes a rare combination of size, innovation and talent to realize profits with a third. And it's a very exclusive club of companies that can launch a fourth business model.

But today Microsoft has four distinct businesses: licensed software, gaming, Web services and personal music. Microsoft established beachheads in the third and fourth businesses in just the past 12 months. Achieving profitability in four business models requires considerable innovation and increases competition.

Shareholders should see profits from Microsoft's Xbox gaming system in 2007, six years after it was launched. The one-year-old Windows Live — essentially an advertising-supported Web services model — is trying to compete with a nimble Google. The new Zune, launched at the end of 2006, is clawing its way into the personal music marketplace dominated by Apple's iPod.

Many companies are profitable with a single business model — Dell and Google are marquee examples, and there are thousands of others. Fewer IT companies have mastered the scale and innovation required to achieve profitability with two business models. The iPod contributes to Apple's bottom line. And Cisco recently announced plans to unbundle its IOS software and networking hardware in a gambit to add a second business model.

With the iPhone, Apple is now hoping for success in three arenas, but few companies can attempt three business models, much less attain profitability. IBM and HP have managed this in licensed software, computing platforms and various types of IT services. IBM exited consumer computing by selling its PC business to Lenovo, while HP continues to invest in this highly competitive fourth business model.

Microsoft's Windows and Office cash cows sustain the company while it experiments to find the right formula to succeed in new high-growth businesses. Microsoft has earned a reputation for tenacity, a critical attribute for making profits with a new business model — perhaps even as important as innovation. Wall Street frowns on spending cash for risky ventures, figuring the money should be returned to stockholders, which is why Microsoft's stock price has languished.

Contrast Microsoft's recent efforts to launch risky new technology business models with its past efforts to eliminate threats to its operating system franchise. Bundling Media Player and the Internet Explorer Web browser with Windows were self-serving marketing moves hailed as innovative technology. The results of this strategy were further bloating of the operating system, more security vulnerabilities and an antitrust lawsuit filed by the U.S. Department of Justice.

Today Microsoft really is fostering competition. Zune, Microsoft's entrant into the Internet music business model pioneered by Apple, will hemorrhage cash for the foreseeable future as the company strives to sell 3 million units in 2007. The upstart Zune competes with Apple's 85% share of the Internet music download market, the result of having sold 67 million iPods and 1.5 billion online songs.

To boost Zune's fortunes, Microsoft is reusing a connectivity strategy that helped to grow the online gaming marketplace and accelerated Xbox sales. Microsoft is attempting to create product synergy with a wireless connection that beams songs among Zunes, just as Xbox's Live Internet connectivity boosted online gaming for Xbox — at the expense of Sony, Nintendo and Sega.

Microsoft's Live offering is challenging Google in the Web services market. Live targets any consumer browser, including Mozilla's Firefox. Windows Live Mail supports competitive e-mail services, including Google's Gmail.

Experimenting with new business models is evidence of real change occurring on the Redmond campus. Interoperability with competitive offerings hasn't been a historic strength of Microsoft's, to say the least. Profitability for Live depends on advertising and subscriptions for premium services, which requires targeting the largest possible addressable market. In fact, Microsoft's commitment to openness and interoperability for the advertising-supported business model may be the boldest of its new moves.

Xbox has been an innovator in online gaming while creating a new marketplace for Microsoft partners. Xbox should become profitable this year with around $4.6 billion in sales, climbing to $7.6 billion in 2009.

Growth in revenue generated by the original software business model should jump from 11% last year up to 13% to 15% in 2007 as Vista and Office upgrades kick in. But this older model is most at risk to competition from maturing Web services business models. And the agile enterprise is the death knell of Windows' five-year software release cycle.

Noticeably absent from Microsoft's assault on new business models is an offering in the open-source software market. But who knows — that may yet become a new business model for Microsoft if it sees dollar signs in the ecosystem of open-source software.

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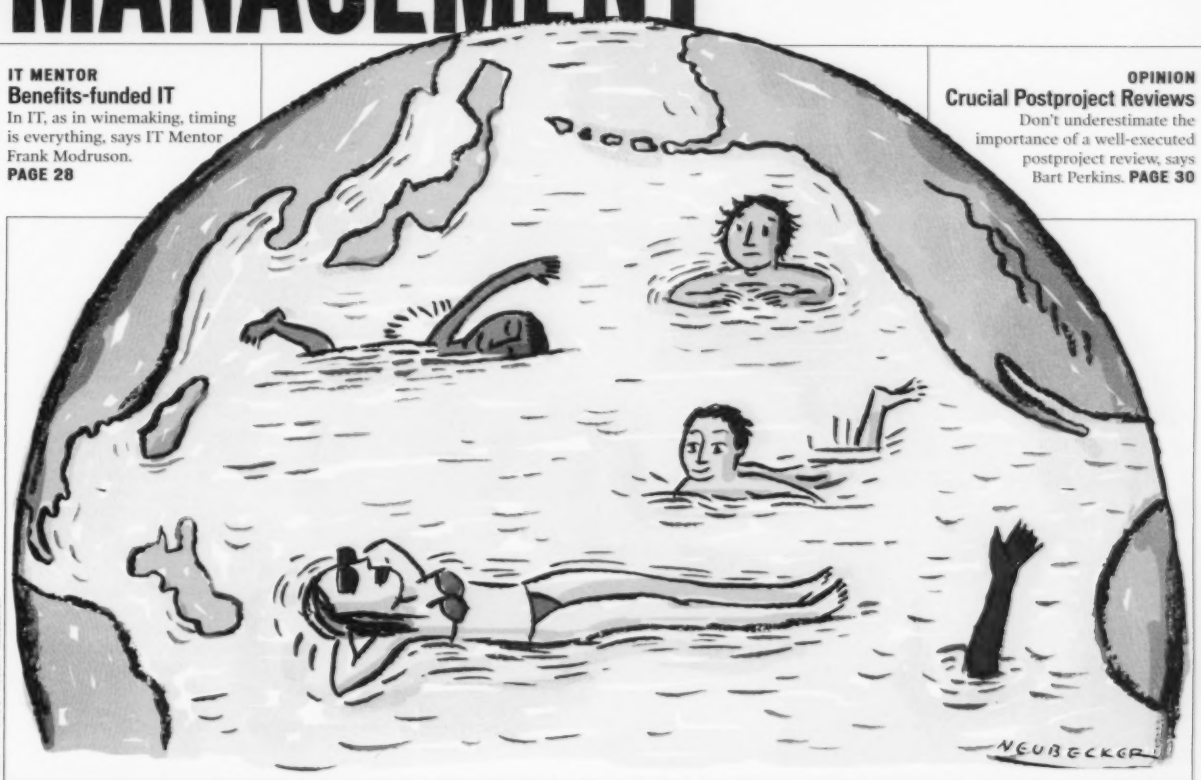
IT MENTOR
Benefits-funded IT
In IT, as in winemaking, timing is everything, says IT Mentor Frank Modruson. **PAGE 28**

OPINION
Crucial Postproject Reviews
Don't underestimate the importance of a well-executed postproject review, says Bart Perkins. **PAGE 30**



ILLUSTRATIONS BY ROBERT NEUBECKER

SWIMMING IN THE GLOBAL TALENT POOL

Thriving in today's worldwide labor market requires top skills, creative tactics and 'relevance.'

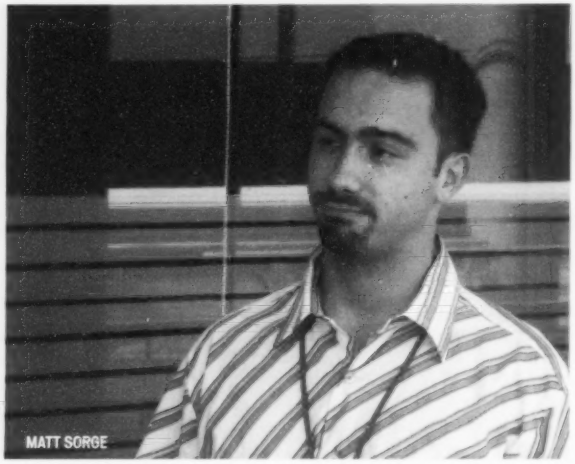
BY MARY BRANDEL

WHEN HE WAS a 16-year-old student, Jeff Kiiza would never have imagined that 10 years later he'd be writing code in Perl, PHP/MySQL and AJAX for companies in the U.S., Canada, Australia and Spain — and that he'd be doing it from his home in Cordoba, Argentina. "Back then, it would have been a dream or science fiction," he says. "But the availability of greater free-flowing bandwidth and companies turning to the Internet have allowed it."

Hemang Dani is pretty amazed that in the past six months, he has boosted his income to $5,000 per month by working for companies in the U.S., the U.K., Germany and Australia. Not bad, considering the low cost of living in his home city of Mumbai, India. Dani's projects range from coding "shopping carts" and enabling credit-card processing on Web sites to managing portals as a webmaster.

Dani and Kiiza have jumped with both feet into the global talent pool. Both worked for overseas organizations even before they joined Menlo Park, Calif.-based oDesk Corp.'s online marketplace, which links programmers with businesses that need their services. Kiiza coded for a university in Tanzania, and Dani picked up work through GetaFreelancer.com, which is owned by a Swedish company called Innovate IT.

And because there are more programmers like them every day in developing parts of the world, IT professionals in the U.S. are now competing in the global talent pool as well. While many U.S. companies today are still hiring globally only when their need is short-lived or skills are scarce or too high-priced in the lo-


MATT SORGE

> Information technology is changing every day, and they don't need people who are stagnant.
>
> MATT SORGE, MIT GRADUATE AND INFOSYS TRAINEE IN INDIA

cal or domestic labor pool, some are going global simply to find the best of the best, no matter where they're located, according to Kevin Wheeler, president of Global Learning Resources Inc., a recruiting consulting firm in Fremont, Calif. "Cisco, Microsoft, Google — these companies have clearly taken the position that they're going where the talent is," he says.

Companies such as MySQL AB don't care where employees live; they hire for raw talent. The open-source software maker's 320 employees reside in 25 countries, and 70% of them work from home, according to Steve Curry, director of corporate communications at MySQL.

Even more-traditional companies like Henkel Corp., a consumer products maker in Düsseldorf, Germany, are letting the work flow to the worker when they're in search of scarce talent. For instance, Henkel's need for IT professionals with experience in SAP's Advanced Planning and Optimizer module prompted the company to extend its talent search outside of North America and Western Europe, even though that's where the software is used the most, says Amy Bloebaum, vice president and CIO at Henkel of America Inc.

"When we're looking for a specialized skill that's in high demand, we're very flexible in terms of where the talent is located," she says.

With all that in mind, IT professionals in today's job market need to begin preparing now to swim among the fresh schools of competitors in the global talent pool. "If you're 45 and plan to work until you're 65, you're going to be forced to embrace this," Wheeler says.

Keep Current

To play in the global game, you don't have to be young, but you do have to exude what technology recruiter David Hayes calls "relevance." This means having at least a basic understanding of some of the so-called Web 2.0 technologies that have emerged in the past few years, such as blogs, wikis, podcasting and RSS feeds.

"The world has changed, and you can either change with it or get swept up by it," says Hayes, president of HireMinds LLC in Cambridge, Mass. "On your résumé, if you don't talk about something you do that's connected to one of these new spaces, you won't even be considered. So start running a cooking blog or say you enjoy podcasting your wife's rock band."

Another key area to at least understand and perhaps participate in is the open-source community. "There's a belief system in there, and you have to be able to express that," Hayes says of the open-source world. "If you want to know what's going on in the world, participate in it."

Though this may not be easy for IT veterans, it's a good way for them to rejuvenate their careers, Wheeler says. "I'll talk to an IT guy with 15 years of experience who knows three or four different programming languages and has really good system experience. Then I start talking about phishing or blogs or PHP, and they look at me like, 'Huh?' " he says. "I don't expect you to do that stuff, but at least you should have heard of it."

IT professionals seeking to work on-site in a corporate setting also need to hone their personal marketing messages, particularly about how they bring value to the business. "Most of our customers want someone in their physical office because it requires interaction with the business community and a holistic connection to the business," says Hayes.

Unfortunately, this isn't what comes across in the bulk of the résumés that Bloebaum sees. "It's very important for job candidates to convey how they made a difference in their last job," she says. "When you read as many résumés as I do, it becomes apparent very quickly which ones think of their technology experience in a business context [and which] think in a technology context."

Even IT professionals who pursue hot technology areas such as reusable software components, service-oriented architecture or wireless applications are practically unemployable if they can't meld that knowledge with how it's used, says Diane Morello, an analyst at Gartner Inc. For instance, if you market your-

STOP TREADING WATER

Tips for pulling ahead in your career from Gartner analyst Diane Morello:

SWIM OR SINK. If you're planning on following a pure technology track, set a goal to be "the most excellent, the most adept and one of the fastest studies out there for moving into new areas of technology," Morello says. "If you're not continually refining what you're doing, you do lose ground."

PICK THE FAST LANE. Be ruthless about which industries provide the most forward-looking opportunities in your interest area, and be realistic about where the best job options lie. "If I go to the IT-specific job boards, 70% to 80% of the jobs are at service providers," Morello says.

PRACTICE WITH WINNERS. Don't discount how important it is to work with the most dynamic and top-notch people, whether through electronically mediated forums or in person. "By virtue of working with them, you're expanding and enriching yourself," Morello says.

HOW TO GET 'FOUND'

THE GLOBAL TALENT POOL is a larger place than most IT professionals are accustomed to operating in – so large, in fact, that it's easy to get lost in the depths. It's also an increasingly virtual place. Recruiters, job seekers and the most talented people in the technology profession spend much of their time on the Web.

In fact, being visible to potential employers means that you need to be "findable," and that means being in places where people are congregating today, says David Hayes, president of HireMinds. "And it's not at church on Sunday morning anymore," he adds.

"There are people who get jobs [easily] who never even wrote a résumé because they're not posting to CareerBuilder.com anymore," Hayes says. "They just have a profile on a social network."

Such networks include LinkedIn, Ryze.com and Ecademy. In fact, if someone mentions a potential job candidate to Hayes, the first thing he does is check for information on LinkedIn.

It's important to ask yourself what a hiring manager would find if he searched for you on the Web, says Kevin Wheeler, president of Global Learning Resources Inc. Becoming active on blogs, podcasts or in open-source communities or creating your own Web page are all ways to become more easily found.

"If you don't have a blog or a Web site and you never made a public speech or aren't part of a volunteer group or committee, there won't be anything out there, so you have to build a presence for yourself," Wheeler says.

Another tactic is to "search-optimize" your résumé by including a keyword section on it where you can list relevant terms such as the industries you've worked in and the technologies you're able to apply, Hayes suggests. "You're spoon-feeding them the words they'll be searching for," he explains. "It makes you findable, and it also shows you're connected, since search engines are a giant part of the employment process."

– MARY BRANDEL

self as an expert in reusable software, you also have to convey your ability to synthesize information about business processes and translate that into software modules, she says. "You need to take a larger view than your own specific job — whether it's a global view, an industry view or a process view," Morello says.

This, says Wheeler, is how IT professionals can show what he calls "charisma." "So many people who have IT skills are technicians — competent executors of things like writing code," he says. "But when you talk to recruiters and hiring managers, they want an IT person who's skilled but has some edge — some moxie or an understanding beyond just being a technician."

Tables Turned

And U.S. companies are not the only ones looking for these intangible traits. Indian firms such as Wipro Ltd., Tata Consultancy Services Ltd. and Infosys Technologies Ltd. are recruiting workers overseas, including in the U.S. At Infosys, for instance, the Global Talent Program looks for graduates from top U.S. universities for software engineering positions.

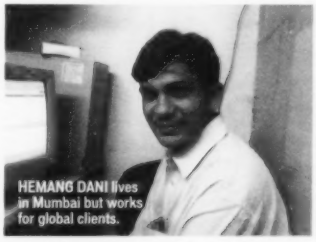
A key characteristic that Infosys seeks in candidates, according to Bikramjit Maitra, vice president of human resource development at the company, is "learnability."

"We take people for their ability to learn, not just for the specific knowledge they have," he says.

So far, 126 U.S. citizens have been hired to undergo such training in India. One of these is 24-year-old Matt Sorge, a mechanical engineering graduate of MIT.

"In the interview, I spoke a lot about the fact that I worked at two to three jobs that were fast-changing and dynamic and that I had to learn on the spot to contribute to the common goal each day," he says. "They were looking for that type of individual because information technology is changing every day, and they don't need people who are stagnant."

It's a trait that Sorge notices not only among the software engineers he meets in India but also in many employees, from the instructors at Infosys to the maintenance people in the hotel he stays in. "Everybody here is extremely motivated and willing to be here until the job is done," he says.



HEMANG DANI lives in Mumbai but works for global clients.

Sorge's time in India will also help him as employers increasingly look for candidates with multicultural experience and the ability to work on global teams. "I'm not saying we won't hire people with experience in [just] one business, one function or one country," Bloebaum says, "but it's quite important for people who come from a variety of skills and backgrounds to make up the IT organization."

The preferred candidate is willing to work within a global model, says John Dubiel, who was recently hired to be a U.S.-based practice director at Tata Consultancy Services North America. "Employers want people who understand different work models, like offshore models, or where your team is in multiple geographic locations outside the U.S.," he says.

It also includes having an open mind about your source of employment. "People in the U.K. and Europe are much more accustomed to working for multinationals [with overseas headquarters] than Americans are," Morello says. "It's a difference between parochial thinking and global thinking — that *global* doesn't necessarily mean *Western*."

Dubiel says a company's location will matter even less over the next five years. "Pretty soon, the issue of whether I work for a U.S. or Indian company will be irrelevant," he says. "All these companies that offer services are pretty much the same; only the headquarters will change."

When that happens, it will become more important than ever for IT professionals to grab hold of their careers and start steering them.

"Many people sleepwalk through their careers," Morello says, "but even older programmers can expand themselves to look at other aspects of knowledge they possess and make it part of the living, breathing experience they offer to a company." ◗

Brandel is a Computerworld *contributing writer. Contact her at marybrandel@verizon.net.*

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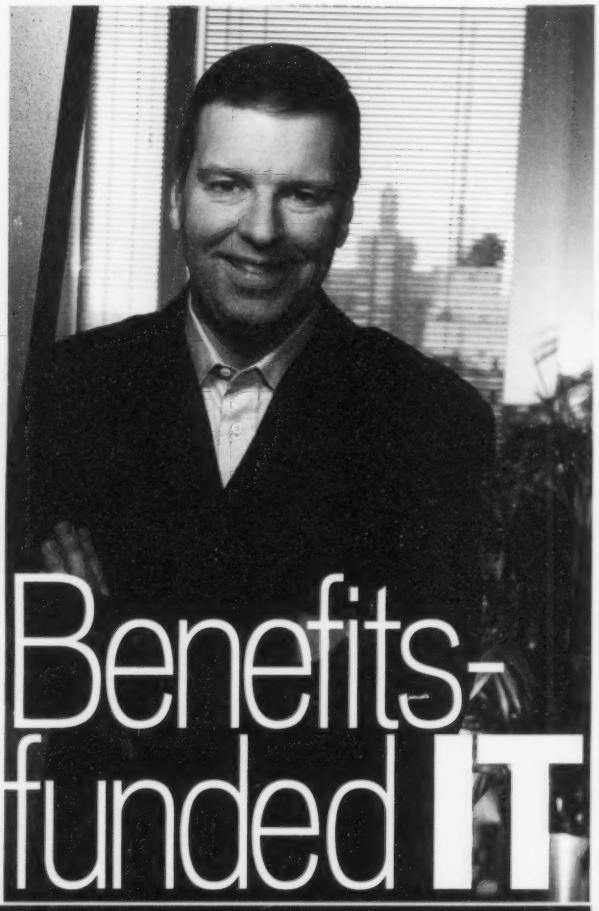

Benefits-funded IT

In IT investments, as in winemaking, timing is everything. By Frank Modruson

IT MENTOR

CIOs AND wine connoisseurs (like me, many of you may be both) can appreciate the power of timing. In wine and IT, timing often makes the difference between technical and financial success and unmitigated failure.

In winemaking, the amount of time grapes are permitted to get sun on the vine before harvest — often called their "hang time" by vintners — is a hot topic. Pick the grapes too soon, and they may not be ripe enough to produce a top-shelf wine. Pick them too late, and you risk pressing "dead fruit" — producing wine whose flavor is too strong. The same goes for IT investments, where timing can have an outsized impact on a project's results.

My company has a variety of ways to fund IT projects, but they all get a good jump-start by having solid business cases with well-defined value propositions, including defined costs and benefits. These business cases then flow through our IT governance process.

Unlike wine consumers, who must rely solely on the vineyards to make the right decisions, our customers (our business sponsors) are involved early, way before the stomping of grapes. Our IT steering committee (ITSC), which comprises the chief operating officers of our businesses, evaluates business cases for every major IT project.

Within that framework, here are our three approaches to IT investments:

Corporate-funded. If the IT organization or a business sponsor proposes a technology investment for the good of the entire company — such as our ERP transformation project — the company makes the investment. The ITSC prioritizes these "greater good" business cases and determines which get funded.

Customer-funded. When the initiative benefits a single corporate organization, business function or location (i.e., it's not a global IT capability), that entity funds it. This approach is also used when the ITSC believes a project is a good idea but not a high enough priority to fund. If the business sponsor feels that the project is important enough, he can fund it with his own operating budget.

The ITSC still reviews and approves customer-funded projects to ensure that the work is aligned with our business and IT strategy and adheres to our IT architecture and standards. Some examples of customer-funded initiatives include payroll systems deployed at the country level, and specific enhancements to our sales management system that are funded by the sales groups.

Benefits-funded. Some business cases are so compelling that it's clear the projects will affect the company immediately. These will be funded within the current fiscal year by the benefits realized. This is where timing is crucial. Very granular assessments and benefits analyses help assure us that these projects will absolutely deliver on their promises in the current fiscal year. For that reason, we typically pitch projects that qualify as benefits-funded early in the year. The organization receiving the benefits funds the project, which is then paid for by in-year benefits accrued (i.e., by reducing expenses).

Of all the ways we invest in IT, our first choice is benefits-funded. If we need $1 million to build or buy something, but doing so will generate $3 million in benefits during the current fiscal year, then that project is ripe for the picking. We get a $2 million return, and the project pays for itself.

One such project is our new personnel scheduling application. This system was developed within one fiscal year. It reduces the time needed to staff assignments by 68% and lowers related costs by 50% while also improving our ability to match skills with open positions — all of which provides a competitive advantage to our firm. Most important in this context, enough of those benefits were realized in the year the project was funded to pay for its costs.

CIOs who leverage benefits-funded IT will reap great rewards, but you must choose the project carefully, execute it at precisely the right time and fully commit the resources to develop and deploy the project. ▸

Modruson is CIO at Accenture Ltd. Contact him at frank.b.modruson@accenture.com.

The Challenges

If you embark upon a benefits-funded approach to IT investments, there are several areas where you might encounter challenges:

Who benefits? Benefits will sometimes accrue to an organization other than that of the business sponsor. Take a procurement system, for example. The procurement organization doesn't manage the budget for the actual cost of the items that are procured; that's spread out among the organizations that purchase the items. However, a procurement system can have a tremendous payback by centralizing purchasing operations, and that benefits all buyers throughout the company, regardless of their organization. Thus, if the project is to be benefits-funded, the business sponsor (procurement) needs to obtain funding from the organization(s) receiving the benefit.

When do we start? Be sensitive to when the project will start. Benefits-funded IT projects must be completed within the fiscal year, so leave enough time from start to finish. Typically, benefits-funded IT initiatives are started early in the fiscal year.

Says who? Engage the finance team to ensure that the benefits are realized and validated. To be sure that the project will be truly benefits-funded, finance should also reduce the annual budget of the organization that will receive the benefits and increase the budget of the group incurring the cost.

– FRANK MODRUSON

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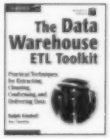

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BART PERKINS

Postproject Reviews: They're Crucial

NEARLY every major systems implementation methodology includes some type of postproject review. A PPR provides an opportunity to review a completed project's strengths and weaknesses as well as propose improvements for future projects.

A PPR should be undertaken for every large project, especially unsuccessful ones. Outsourced projects particularly benefit from the structured analysis and communication required by a review.

BART PERKINS is managing partner at Louisville, Ky.-based Leverage Partners Inc., which helps organizations invest well in IT. Contact him at **BartPerkins@LeveragePartners.com**.

Changes in your IT organization, like changes in your life, require time for reflection. A PPR is an opportunity to learn from past mistakes and successes and to improve project development practices. Unfortunately, such reviews are frequently perfunctory or skipped entirely. Major companies perform comprehensive reviews on less than 20% of their large projects, according to Stuart Orr at Vision 2 Execution.

Objections to PPRs are myriad. Many IT organizations find it difficult to get project staffers to focus on PPRs, which are often viewed as time-consuming overhead. Because of resource shortages, key project members are frequently reassigned to other projects before a review is conducted. In addition, reviews of projects that were plagued by political problems or contentious disagreements can reopen old wounds.

Despite these objections, comprehensive project reviews are worth doing because they provide significant benefits. For example, they help IT organizations do the following:

■ **Reassess business benefits.** Most IT projects are part of a business program. While the benefits of the overall program may not be known for several years, the PPR provides an opportunity to assess whether the projected business benefits (from both the project and the overall program) will be realized. Use the review to reset management expectations if necessary.

■ **Improve estimation accuracy.** The PPR provides an opportunity to compare the original (and revised) estimates with the actual time and resources consumed. The objective is to make future estimates more accurate, not to criticize.

Most large organizations have progressed from "back of the envelope" estimates to more rigorous bottom-up estimates based on interfaces, screens, data fields and other tools. But even sophisticated estimating tools must be frequently recalibrated based on your organization's actual project experience. Use the PPR to do this.

■ **Evaluate what went well.** The PPR is an opportunity to evaluate the effectiveness of project management methodology, executive sponsor participation, risk mitigation and political support. Use it to determine how each can be better leveraged on future projects.

■ **Identify areas for improvement.** PPRs help minimize problems on future projects. Every project encounters some problems, such as unexpected functionality changes, missed deadlines, technology snafus and marketplace changes. Use the PPR to evaluate the project team's effectiveness at identifying, responding to and resolving problems.

Also assess the success of the adopted solutions. To improve future planning, review the original project documents to determine whether the problems actually encountered were initially identified as risks. Anticipated problems are much easier to address than unexpected ones. Finally, brainstorm about what could be improved on future projects to prevent similar problems.

■ **Capture and encapsulate project experience.** Project history tends to get rewritten or forgotten altogether if it is not captured in a reasonable amount of time. Written records ensure that the lessons learned — sometimes painfully — don't get lost. In addition, PPR records may be invaluable in future negotiations or during litigation related to contentious projects.

■ **Get management support.** A PPR is an opportunity for management to listen and learn from team members' experiences. Reviews often uncover ways to improve your organization for future projects. If management fails to act on changes proposed through the PPR process, however, staffers will become cynical.

Use the review to get management's commitment for the improvements and to hold management accountable for implementing the changes.

■ **Acknowledge contributions.** Use the PPR to publicly identify heroic efforts and thank all team members for their contributions to the project.

Although PPRs take time and effort, the insights gained can be invaluable to IT efforts to improve project delivery capability. A comprehensive PPR is an opportunity to leverage the lessons from past projects into improvements that will enhance the planning, delivery and success of future projects.

Most IT organizations recognize that comprehensive postproject reviews provide valuable information and develop suggestions for improvement.

Properly undertaken, the PPR provides an opportunity for team members to reflect and report on their experiences in a way that helps the organization learn constructive lessons. Without feedback, few organizations are fully aware of their potential to improve. Capitalize on past experience; you have already paid for it!

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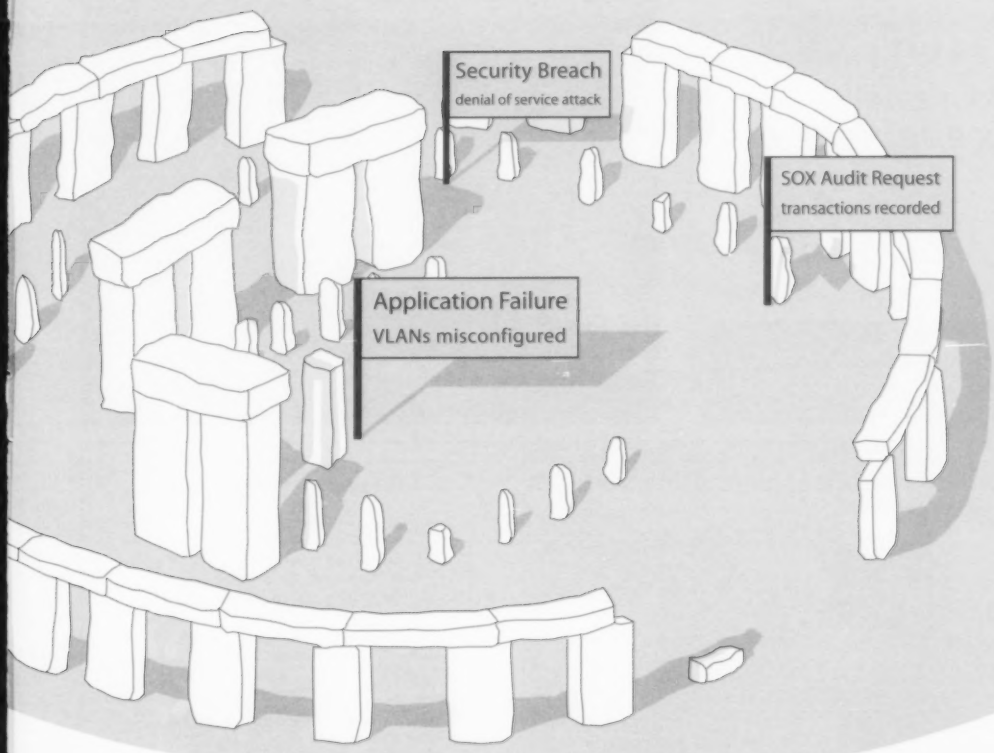

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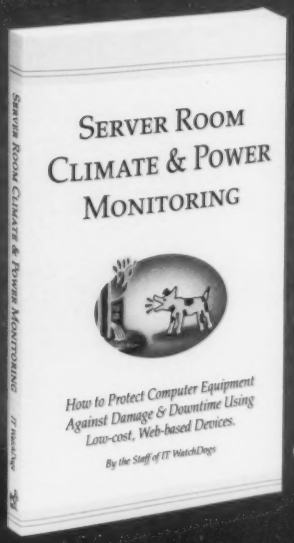
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ADOBE SYSTEMS INC. 10
ADVANCED MICRO DEVICES INC. 8, 23, 24
AÉROPORT DE LUXEMBOURG 12
AETNA INC. 7
AFFORDABLE INTERNET SERVICES ONLINE INC. 7
AISO.NET 7
ALIBABA.COM CORP. 12
ALISOFT.NET 12
APPLE INC. 24, 38
ATLANTIC BEEF PRODUCTS INC. 36
BAIDU.COM INC. 12
BENQ CORP. 12
BENQ MOBILE GMBH 12
BETH ISRAEL DEACONESS MEDICAL CENTER 16
BROCADE COMMUNICATIONS SYSTEMS INC. 10
BROTHER INDUSTRIES LTD. 20
BT COUNTERPANE INTERNET SECURITY INC. 20
CANON INC. 20
CAREGROUP HEALTHCARE SYSTEM 16
CASIO INC. 36
CENTOS 24
CHICAGO MERCANTILE EXCHANGE HOLDINGS INC. 6
CHINA INTERNET NETWORK INFORMATION CENTER 12
CINGULAR WIRELESS LLC. 24
CISCO SYSTEMS INC. 23, 24, 26
CLERITY SOLUTIONS INC. 14
CLOVER TOYS 36
COGNOS INC. 15
CORVU CORP. 15
DATALINK CORP. 6
DELL INC. 24
EBAY INC. 16
ELECTRONIC PRIVACY INFORMATION CENTER 6
FORRESTER RESEARCH INC. 7
FUJITSU LTD. 20
GARTNER DATAQUEST 12
GARTNER INC. 16, 26, 30
GETAFREELANCER.COM 25
GLOBAL LEARNING RESOURCES INC. 26, 27
GOOGLE INC. 12, 24, 26
HANNON HILL CORP. 8
HARVARD CLINICAL RESEARCH INSTITUTE 16
HARVARD MEDICAL SCHOOL 16
HENKEL CORP. 26
HENKEL OF AMERICA INC. 26
HEWLETT-PACKARD CO. 8, 10, 20, 24
HIREMINDS LLC 26, 27
HUAWEI TECHNOLOGIES CO. 12
HYPERION SOLUTIONS CORP. 15
IBM 7, 8, 10, 12, 14, 20, 24
IDC 7, 8, 15
INDEPENDENT ORACLE USERS GROUP 6
INFOCROSSING INC. 14
INFOSYS TECHNOLOGIES LTD. 27
INNOVATE IT 25
INTEL CORP. 6, 12, 23
INTERNAL REVENUE SERVICE 10
INTERNATIONAL ASSOCIATION OF OUTSOURCING PROFESSIONALS 30
INTERNATIONAL ORACLE USERS GROUP 6
INTERNATIONAL STANDARDS ORGANIZATION 30
INTUIT INC. 36
JAPAN GROUND SELF-DEFENSE FORCE 23
JOINT PHOTOGRAPHIC EXPERTS GROUP 22
JUNIPER NETWORKS INC. 10
LENOVO GROUP LTD. 24
LEVERAGE PARTNERS INC. 30
LEXMARK INTERNATIONAL INC. 20
LIBERTY ARK COALITION 36
LINKEDIN CORP. 27
MAS STRATEGIES 15
MATROX GRAPHICS INC. 24
McCORMICK AND CO. 18
McDATA CORP. 10
MERIT-TRAX TECHNOLOGIES INC. 36
MI5 12
MICROSOFT CORP. 6, 7, 8, 10, 15, 16, 22, 23, 24, 26, 36
MIT 16, 27
MOTOROLA INC. 12
MOZILLA FOUNDATION 24
MYSQL AB 10, 26
NATIONAL E-PRESCRIBING PATIENT SAFETY INITIATIVE 6
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY 6
NATIONAL SECURITY AGENCY 6
NCR CORP. 10
NEW ENGLAND HEALTH ELECTRONIC DATA INTERCHANGE NETWORK 16
NINTENDO OF AMERICA INC. 24
NOKIA CORP. 12
NORTH ATLANTIC TREATY ORGANIZATION 6
NORTHEAST ORGANIC FARMING ASSOCIATION OF MASSACHUSETTS 36
NYSE GROUP INC. 14
ODESK CORP. 25
ORACLE CORP. 1, 6, 7, 10, 15, 36
ORGANIZATION FOR THE ADVANCEMENT OF STRUCTURED INFORMATION STANDARDS 7
OUTLOOKSOFT CORP. 15
PALM INC. 24
PENGUIN COMPUTING INC. 24
POSTINI INC. 8
PROPHECY INTERNATIONAL PTY. 1, 15
PSION TEKLOGIX INC. 36
RYZE LTD. 27
SALESFORCE.COM INC. 8
SANS INSTITUTE 20
SAP AG 6, 8, 26, 36
SCANSAFE SERVICES LLC. 8
SEA GULL LIGHTING PRODUCTS LLC. 7
SECURELOGIX CORP. 8
SECURITIES INDUSTRY AUTOMATION CORP. 14
SEGA OF AMERICA INC. 24
SEIKO EPSON CORP. 20
SENTEX SENSING TECHNOLOGIES INC. 12
SERVICE & SUPPORT PROFESSIONALS ASSOCIATION 8
SIEMENS AG 12
SILVERBACK SYSTEMS INC. 10
SOHU.COM INC. 12
SOLAR ENERGY INDUSTRIES ASSOCIATION 7
SONY CORP. 24
SUN MICROSYSTEMS INC. 8, 14
SUNEDISON LLC 7
SYMANTEC CORP. 6, 16, 20
SYMBOL TECHNOLOGIES INC. 12
TAIWAN SEMICONDUCTOR MANUFACTURING CO. 12
TATA CONSULTANCY SERVICES LTD. 27
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U.S. TRANSPORTATION SECURITY ADMINISTRATION 14
UNISPHERE RESEARCH 6
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Continued from page 1

ID Mandate

and the public."

The farmers and ranchers, and the industry groups that represent them, contend that a mandatory NAIS program would impose unnecessary costs and technical challenges on their businesses.

NAIS calls for using technology to tag and track cattle and other livestock from birth to the slaughterhouse. No technology has yet been chosen for the effort, though analysts expect that most farmers would use radio frequency identification tags.

The program aims to track animals through the supply chain to help health officials find the source of meat-borne diseases such as bovine spongiform encephalopathy, also known as mad cow disease.

Officials at the U.S. Department of Agriculture, which oversees the program, last week insisted that participation in NAIS will remain voluntary and that the agency won't limit participants to using a specific technology.

Tagging livestock is costly and challenging, according to farmers.

But Peterson argued that the effort has yet to see much success and needs a boost.

"USDA's success in implementing the NAIS to date has been limited at best," Peterson said. "Nearly $100 million has been spent to establish the system, and yet we still do not have a functioning system. Many other countries, including Canada and Australia, established functioning programs at a lower cost than we have already spent."

Frank Albani, president of the Northeast Organic Farming Association of Massachusetts, an organization based in Barre, Mass., that counts 900 small farmers among its members, argued that NAIS will benefit only RFID gear vendors and large meat producers and retailers while hurting small farmers. "They have [tracking] systems in place in Ireland and Australia, and they cost an exorbitant amount of money," Albani said.

Large agribusinesses have already installed systems to track animals or meat that is shipped cross-country or internationally, he noted. On the other hand, smaller farmers generally sell their wares locally, so such a program isn't needed for them, Albani said.

'Points of Failure'

Karin Bergener, founder of the Hollow Rock, Tenn.-based Liberty Ark Coalition, said that the exact cost of using RFID chips on animals remains undetermined. However, she said that her group, which was established to fight NAIS, has estimated that costs in countries such as the U.K. and Australia can run as high as $69 per head of cattle, a total that could erase the profit margin for some species.

She also noted that "the points of failure involved with such a database are almost impossible to count." Bergener also raised privacy concerns, contending that the technology could also be used to track animal owners.

Pushback from producers prompted the USDA in November not to switch from a voluntary program to a mandatory one, an agency spokesman said. At the time, the USDA also shifted technical and implementation responsibility to state governments. "We believe the best program respects states' rights," he said. "It's up to the states [to determine] if they want to make it mandatory."

So far, only Michigan has moved to require mandatory compliance with the rules. All cattle in that state must have RFID tags by March 2007.

The USDA spokesman noted that the department has spent about $84 million thus far to implement NAIS.

Meanwhile, Peterson is calling on his colleagues in Congress to seek ways of making NAIS implementation cheap, efficient, secure and mandatory. No timeline has been set to discuss his proposal. ▸

Microsoft Set to Unveil Retail App Upgrade

Plans to announce upgrades to retail management, point-of-sale software

BY MARC L. SONGINI

Microsoft Corp., Oracle Corp. and SAP AG all plan to unveil new offerings this week at the National Retail Federation 2007 conference in New York.

Microsoft will introduce the Microsoft Dynamics Point of Sale 2.0 and Microsoft Dynamics Retail Management System 2.0 applications during the conference, according to Jen Larson, senior product manager for Microsoft's point-of-sale offerings.

Point of Sale 2.0 is tailored for cash registers at single-store operations and has been enhanced to make cashiers more efficient, Larson said.

The application also features integration with Microsoft Office Accounting Professional 2007 software, she said.

Microsoft's point-of-sale application has already delivered greater flexibility in cashier operations at beta tester Clover Toys, according to Sarah Furstenberg, owner of the Seattle-based specialty toy store.

With the new Microsoft software, it's easier to customize the screens on Clover's Casio Inc. cash registers, she said, adding that it's also easier to teach new employees to use the system.

Other New Apps

ORACLE CORP.

- **Retail Returns Management**, an application for integrating returns processes and preventing fraud
- The integrated, business-intelligence-based **Promotional Planning & Optimization** app

SAP AG

- **Master Data Management for Retail** to help retailers synchronize employee and product information
- **SAP Zone Optimization** decision-support tool to boost profit

Additionally, the retailer expects to soon take advantage of Point of Sale 2.0's integration with Accounting Professional to eliminate manual bookkeeping processes, she said, noting that Clover currently uses Intuit Inc.'s QuickBooks application.

Microsoft will also announce Retail Management System 2.0, said Larson, which is tailored for small to midsize stores. That application has been updated to help users more easily manage complex inventory processes, she said.

Pricing for Microsoft's point-of-sale software starts at $799 for a single store; Microsoft Dynamics Retail Management System starts at $1,190 for a single store.

Oracle and SAP officials said that during the conference, each company plans to unveil two products targeting retail customers. ▸

Canadian Beef Processor Touts RFID

USING an RFID tracking system for animals can boost efficiencies and provide benefits to small meat producers and processors, according to a Canadian company using such a system.

ARSENAULT: RFID benefits livestock suppliers.

Some small farmers and ranchers in the U.S. are resisting efforts by federal and state governments to implement a system for tracking animals. Those farmers have argued that the costs of such a system could prove to be prohibitive and that privacy concerns have not yet been addressed.

However, using RFID systems to track livestock has proved beneficial to the suppliers of animals to Atlantic Beef Products Inc., said Paul Arsenault, controller at the beef processing operation in Albany, Prince Edward Island.

Arsenault said that Atlantic Beef's tracking system uses readers from Psion Teklogix Inc. in Mississauga, Ontario, and software from Merit-Trax Technologies Inc. in St. Laurent, Quebec.

The cows are tagged with passive RFID chips by farmer clients of the processor and are tracked from the barn to the processing plant "till they're out the door," Arsenault said. Atlantic Beef processes about 500 animals per week for about 225 farmers.

The system enables real-time monitoring and automates the delivery of data for invoicing, food labeling and shipping.

Arsenault said that using RFID tags ensures that small farmers get credit – and are paid – for the exact amount of beef they ship to the processing plant.

– MARC L. SONGINI

Periodical postage paid at Framingham, Mass., and other mailing offices. Posted under Canadian International Publication agreement #41321519 **CANADIAN POSTMASTER:** Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A 7C9. Computerworld (ISSN 0010-4841) is published weekly, except a single combined issue for the last two weeks in December by Computerworld, Inc., 1 Speen Street, Box 9171, Framingham, Mass. 01701-9171. Copyright 2007 by Computerworld Inc. All rights reserved. Computerworld can be purchased on microfilm and microfiche through University Microfilms Inc., 300 N. Zeeb Road, Ann Arbor, Mich. 48106. Computerworld is indexed. Back issues, if available, may be purchased from the circulation department. Photocopy rights: permission to photocopy for internal or personal use is granted by Computerworld Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $3 per copy of the article, plus 50 cents per page, is paid directly to Copyright Clearance Center, 27 Congress St., Salem, Mass. 01970. Reprints (minimum 100 copies) and permission to reprint may be purchased from Renee Smith, Computerworld Reprints, c/o Reprint Management Services, Greenfield Corporate Center, 1808 Colonial Village Lane, Lancaster, Pa., 17601, (717) 399-1900, Ext. 159, Fax (717) 399-8900, Web site: www.reprintbuyer.com, E-mail: computerworld@reprintbuyer.com. Requests for missing issues will be honored only if received within 60 days of issue date. Subscription rates: $5 per copy; U.S. – $99.99 per year; Canada – $130 per year; Central & So. America $250 per year; Europe – $295 per year; all other countries – $295 per year. Subscriptions call toll-free (888) 559-7327 **POSTMASTER:** Send Form 3579 (Change of Address) to Computerworld, PO Box 3500, Northbrook, IL 60065-3500

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FRANK HAYES ■ FRANKLY SPEAKING

The iPhone Idea

AND NOW, THE iPHONE. Smack in the middle of gadget season — when users are figuring out their high-tech holiday gifts and hot new items are coming out of the Consumer Electronics Show — here comes Apple's entry: a $500 cell-phone-cum-iPod-cum-wireless-Web-browser that has stolen the limelight from everything else.

Is it really as stuffed with innovative features as Steve Jobs made it sound from the stage at Macworld Expo last week? Nah. Most of those features have been around in one form or another for years. Apple just put them all together.

Which is part of what makes the iPhone such a brilliant idea — and such a terrible example for corporate IT.

Widescreen pocket media player? Been done. Handheld Web browser? Been done. Quad-band GSM phone? Been done, in almost every way imaginable. Camera? Wi-Fi? Bluetooth? Old news. Even the all-touch-screen phone interface Jobs gushed over ("We're going to use the best pointing device in our world — we're born with 10 of them, our fingers") has been around since 2001.

Yes, Apple tweaked those features, polished them up and added some small enhancements like "the pinch" for zooming in on Web content. Mostly, though, Apple took a big pile of things that already work and then stitched them together into something new.

But does Apple know what users will actually do with the iPhone? Nope. Jobs all but admitted that last week when he claimed he was introducing three new products before unveiling the one real thing.

No doubt the people who worked for years to create the iPhone believe they've created a beautifully integrated all-in-one gadget. It's elegant. It's stylish. But it's a gadget whose real purpose — and future — depends on its users.

Maybe users will just decide it's the world's best (and most expensive) iPod. Maybe they'll see it mainly as the perfect pocket-size Web-browsing device. Maybe Apple's cachet is so strong that some people really *will* want it as a $500 cell phone.

Most likely, early iPhone buyers will end up mixing and matching those functions. They'll figure out what's useful and what's not. They'll discover uses that never occurred to the iPhone's designers.

And a year from now, those early adopters will have made clear to Apple what should come next — whether that means a big-screen iPod that's just an iPod, an even-more-beefed-up Web/phone combo, or just a big hole in Apple's product line where the iPhone used to be.

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For Apple, the iPhone's identity crisis is a gamble — and an opportunity to let users tell the company what the product is good for. Listening to those users isn't just a good idea. It's crucial. They'll tell Apple how to be successful.

So, why is that such an awful example for us?

In IT, we need to listen to users too. To be successful, we have to pay attention to what users actually do with the software and hardware we deploy. Those people are the ones who can tell us what's right and wrong with our systems, and show us problems and advantages we'd otherwise never know about.

But we don't have the luxury of years to build applications that bundle together a lot of good ideas. We can't afford an identity crisis. And we definitely can't risk waiting until after we've dropped a system in users' hands to find out whether we're on the right track.

Our job is to cut that risk — with prototypes, user input and feedback, and plenty of hands-on testing as we develop a system. Sure, we know what works. That's not enough. We need to learn what our users will do with it. And we need to learn that early and often.

We have the opportunity to know what our users need before we finish our elegant, stylish work. And we can't afford not to.

So, as we all lust after Apple's shiny new gadget, just remember this: The iPhone may be a brilliant success — or an elegant failure. No one knows for sure yet.

But we can be sure that what works for the iPhone is still a very bad idea for IT. ◗

Priorities

Lightning strikes a company's telephone network, and this pilot fish and his cohorts manage to get the new PBX up and programmed in a week. They know such fast work will leave problems, which they're handling first come, first served. But one problem quickly jumps to top priority: The help desk phone line has been routed to the plant's waste treatment facility. "What made it worse is that the waste treatment operator, a nice guy but with limited computer experience, started giving out computer advice," fish says. "The results were predictable: We could see our approval rating plummeting, and repairing his phone went to the top of a very long list."

SHARK TANK

Oops!

Receptionist has a floor pedal under her desk that controls the lock on this company's lobby door, so she can let in visitors from the main building lobby. "It stopped working one day, so she called a tech to check it out," says a pilot fish there. "He traced the wire to the space our old security office used to occupy – space that had been sublet. The remodeling crew had gutted the area and, of course, clipped the wire. We'll have the new lock control installed in a week. In the meantime, the door to the lobby is propped open."

Gee, Thanks

This company has built its own enterprise applications, and the IT department's developers have high-end workstations loaded with C++ compiler, libraries and linker – no surprise there. "But the director of software development insisted that the entire development environment be installed on each user's machine," reports an insider pilot fish. "He said the developers created the programs with this environment, and it must be duplicated on the users' machines in order to work reliably. So all the users got some really nice computer upgrades just to install the development environment."

Fear Her

Pilot fish pages one of his technicians for several hours but gets no response. When he finally spots the tech in a hallway, fish asks why he hasn't answered the page. "My pager is broken – I dropped it in the toilet," tech says. Well, go to the woman in charge of our company's cell phones and get it replaced, fish says. "I'm afraid to," says tech. "Last week, I had it replaced because my dog bit it and broke the screen, and replaced again when I dropped it while standing on a ladder. She threatened to hurt me if I damage another one."

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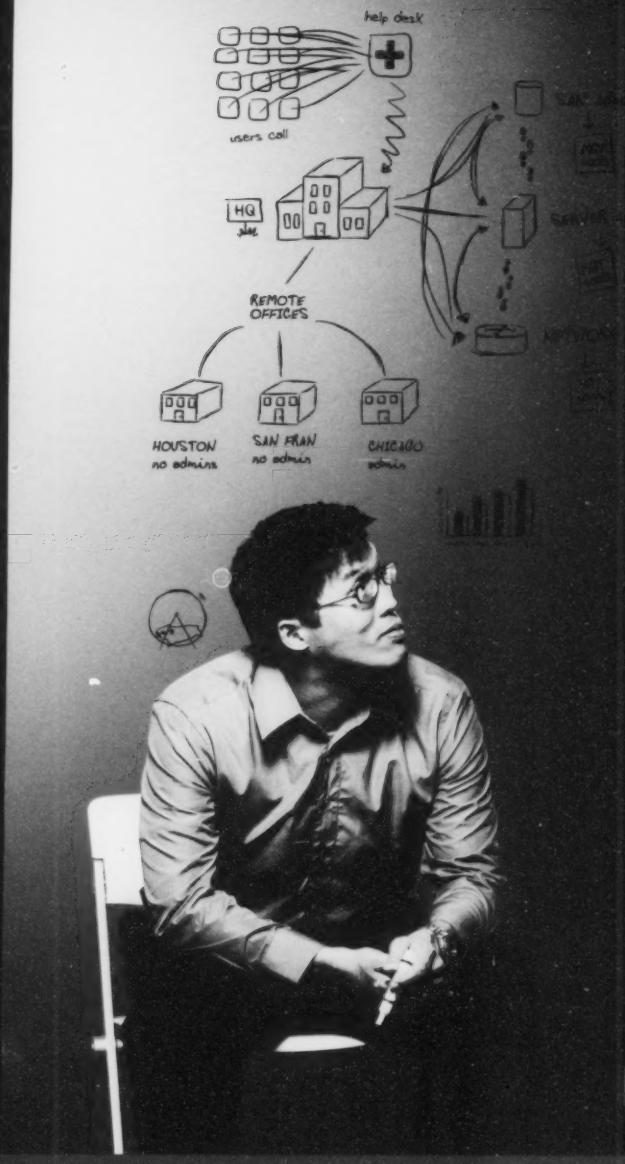

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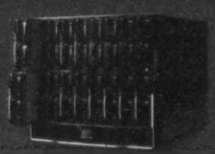

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